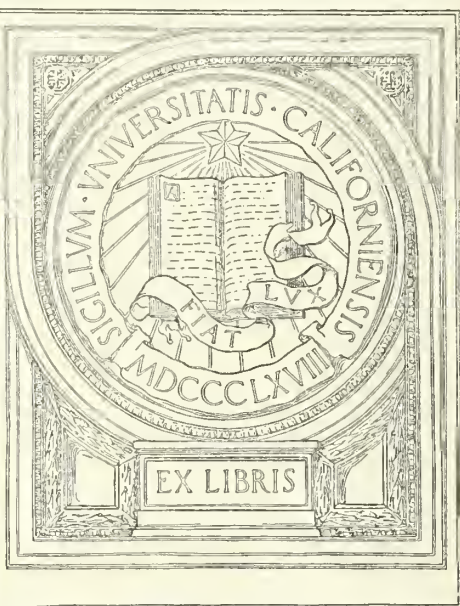



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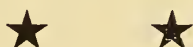
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WILL SOCIALIZED MEDICINE BECOME A WAR EMERGENCY MEASURE?*

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FORT WORTH, TEXAS

While the subject of socialized medicine may be somewhat threadbare, it is still most important to both the medical profession and the lay public. It has assumed particular importance since the current war emergency arose. In my opinion, an effort will be made to engraft socialized medicine on this country as a war measure, much as was the case with national prohibition and the World War a quarter of a century ago. If so, in a generation or so there will not be enough people with a knowledge of medicine as it exists now, to set up a very impressive demand for its return; thus the danger of irreparable loss.

There are three main reasons why the practice of medicine along some socialistic line may be sought during the present war emergency. First, there is a small but determined and intelligent group of people of radical tendencies who are persistent in their efforts to socialize not only medicine but everything else in this country. This group has heretofore fostered the idea as a means of distributing medical service to the underprivileged. They will not be slow to add to that any additional reasons which may arise from the emergency of war. Second, the physical examinations made of

the youth of the land in connection with prospective war service disclose, as has always been the case, a deplorable state of health in such a large percentage of those examined as to become at once a national disgrace. In the third place, the demands due to be made for physicians for our armed forces, our enormously developing industrial enterprises and accentuated public health, will create at least a temporary shortage of practicing physicians for the civilian population. It will be recognized that these reasons are all in line with those originally advanced in support of compulsory sickness insurance, and the large variety of plans which followed, all of them placing the practice of medicine on a mass production basis, with the inevitable loss of the strictly personal and professional element, which has been the safeguard of the public and the medical profession in very delicate situations through the years.

The contention will be, of course, that if our young men who now find themselves physically unfit for military service had received adequate medical care in their early youth, the situation would be vastly better. It will be further contended that if the full time of every physician in the country can, through some arrangement, be utilized, their combined service can be made to cover the deficiencies arising from the war emergency. These contentions cannot be denied, but socialized medicine is not the answer. The medical profession, and those laymen who realize the seriousness of the situation, must see to it that the right answer is made apparent. This is no small task, as many of us can testify. It is rather difficult to disclose to the public the difference between unselfish and selfish propaganda. It

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is difficult to make the public understand that the doctor can plead the cause of scientific, ethical medicine for other than his own self-interest.

The truth of the situation is that the medical profession has been interested in devising ways and means of distributing its services to all who may have need of them, much longer than have those who are now agitating the question. Hundreds of plans designed to accomplish that purpose have been devised and are now on file at the headquarters of the American Medical Association, at Chicago. Many of these plans have been tried and found wanting. A few of them have been found practicable, only to fail because of lack of demand. A few of them are in apparently successful use. It would be interesting to discuss in some detail the reasons why some of these plans have failed while only a few have succeeded, and even those not ultimately so, but time will not permit. Perhaps it will suffice to say that only in certain parts of the country is there any definite demand for medicine on an insurance basis, even where the objectionable features of compulsion are not present. In a still fewer number of communities, all of them congested and most of them largely composed of people of European origin, and with European ideas, is anything like compulsory health insurance under governmental supervision or domination even apparently demanded by the people.

The Federal Government made an extensive survey of the country a few years ago, in an effort to determine whether the people were actually in need of medical attention which they could not procure. A few counties in each state were picked for the test, and laymen were employed to make a house to house canvass and get the answers to a very complicated questionnaire. The notorious and so-called National Health Conference followed. It was held at Washington, D. C., in July, 1938. The conference was supposed to be between the producer and consumer of medical service, with the Federal Government acting as co-ordinator.

As a matter of fact, it was a conference between hand-picked representatives of radical organizations, or radical representatives of perhaps conservative organizations, with also hand-picked representatives of the medical profession, very, very few of whom represented the prevailing opinion of the medical profession as a whole with regard to socialized medicine. The plan was very cleverly designed to foist upon the public some sort of Government supervised health insurance. The results of the survey just mentioned were used as evidence of the need of something of the sort.

In the meantime, the American Medical Association conducted a survey of its own, seeking to determine the actual and intimate facts as to the distribution of medical service. Organized medicine had assisted the government in the survey it had made, and it had been agreed that the results of the survey would be made known to the medical profession before anything was done about it. It is unfortunate that this did not happen. The high-powered Inter-departmental Committee to Co-ordinate Health and Welfare Activities of the Government, which reported to the National Health Conference on the survey, might have been saved some embarrassment because of erroneous deductions and conclusions, had something of the sort been done. The American Medical Association survey was conducted by practicing physicians, the only group in the country which could possibly make a dependable survey along such lines. This survey failed utterly to disclose the conditions presumed by the National Health Program to exist throughout the country. It did disclose, for one thing, that the medical profession throughout the United States contributed more than \$1,000,000 per day in the form of free medical service for the indigent. It was observed at the time that if Government agencies would take over this burden, the medical profession would be in a position to take care of the so-called "medically needy" on a reduced fee or income basis. Were this done, there would be no problem of distribution of medical service.

Whereas the Government had said there were 40,000,000 medically indigent, the indications were that the number was much nearer 40,000. The Government had said that a family was medically needy which did not receive a total income of more than \$800.00 per year. It was found that millions of self-respecting and self-sustaining people throughout the country did not receive that much money per year. Most of them did not consider themselves medically needy, or any other sort of needy. It was quite evident that financial conditions varied so throughout the country, and everywhere were so definitely relative, that no figures could be made generally applicable. The American Medical Association set up for itself a definition of the term "medically needy." It was as follows: "A person is medically indigent when he is unable, in the place in which he resides, through his own resources, to provide himself and his dependents with proper medical, dental, nursing, hospital, pharmaceutical and therapeutic appliance care without depriving himself or his dependents of necessary food, clothing, shelter and similar necessities of life, as determined by the local authorities charged with the duty of dispensing relief for the medically indigent."

Certain figures in connection with the cost of medical service in this country, most of them taken from reports of departments of the Federal Government, may be of interest in this connection. It was estimated that the cost of medical service in America at that time was three and one-quarter billion dollars per year, of which amount the Federal Government was at the time paying one-half billion for the care of its wards and dependents. Including hospital service, the net cost to the public was \$3,800,000,000. Breaking these figures down a bit, it seems that the doctor got \$750,000,000; the hospital \$700,000,000; patent medicine \$375,000,000, and cultists \$125,000,000. It was clear that should the money spent for futile medical service be paid for competent medical service, there would be no medical problem. We might go further than that, and devote to this cause some of the money now spent for purposes considerably less

important than medical service. For instance, we spent \$3,000,000,000 on movies; \$2,000,000,000 on radios and musical instruments, including the saxophone; \$2,500,000,000 on confections, and \$4,000,000,000 on tobacco—to name only a few of the non-essentials for which we were spending our money. Of course, no one is going to attempt to tell the people, at least not in a democracy, how they shall spend their money, but it should be equally as democratic to assume that if people do not spend their money for medical service rather than for the non-essentials mentioned, the absence of adequate medical service should be looked upon as strictly their personal affair. After all, it is medical service to the actually indigent that is causing most of the trouble, and certainly the indigent do not belong exclusively to the doctor, although it would seem that many so consider it. As a matter of fact, the above mentioned and complained of National Health Conference recommended a Federal grant for the purpose of caring for the medically needy in the sum of \$400,000,000 annually. What really was meant was that the sum mentioned be used to care for what we have ordinarily and loosely considered the poor. Families in the lower-income economic brackets were to be cared for through general taxation and special assessments.

The American Medical Association very promptly assured the Federal Government that it would agree to any system of practice which would insure the distribution of medical service, provided there was no interference with free choice of physician or patient; that no agency would be allowed to come between the physician and his patient, and that there would be no interference with the doctor in his choice of procedure in either diagnosis or treatment. This view is more fully stated in the so-called "Ten Commandments of Medical Economics" adopted by the American Medical Association at about that time. They are as follows:

"I. All features of medical service in any method of medical practice should be under the control of the medical profession. No other body or individual is legally or educationally equipped to exercise such control.

"II. No third party must be permitted to come between the patient and his physician in any medical relation. All responsibility for the character of medical service must be borne by the profession.

"III. Patients must have absolute freedom to choose a duly qualified doctor of medicine who will serve them from among all those qualified to practice and who are willing to give service.

"IV. The method of giving the service must retain a permanent confidential relation between the patient and a 'family physician'. This relation must be the fundamental and dominating feature of any system.

"V. All medical phases of all institutions involved in the medical service should be under professional control, it being understood that hospital service and medical service should be considered separately. These institutions are but expansions of the equipment of the physician. He is the only one whom the laws of all nations recognize as competent to use them in the delivery of service. The medical profession alone can determine the adequacy and character of such institutions. Their value depends on their operation according to medical standards.

"VI. However the cost of medical service may be distributed, the immediate cost should be borne by the patient if able to pay at the time the service is rendered.

"VII. Medical service must have no connection with any cash benefits.

"VIII. Any form of medical service should include within its scope all qualified physicians of the locality covered by its operation who wish to give service under the conditions established.

"IX. Systems for the relief of low income classes should be limited strictly to those below the 'comfort level' standard of income.

"X. There should be no restrictions on treatment or prescribing not formulated and enforced by the organized medical profession."

There have been later pronouncements on the subject, but I like these better than any.

They are certainly more descriptive, and bear more directly on the problem.

In most general terms, the favorite suggestion for the application of socialized medicine to the situation existing in this country is the organization of groups of physicians, preferably around hospitals or other medical centers, each with its panel of patients, and each supported by money paid by the patient in the form of monthly assessment, and money appropriated by local, state and Federal governments, on a per capita or percentage basis. The details of the simplest of these plants are enormously complicated, and in none of them is the end of complication in sight.

The medical profession holds that it is impossible to insure against sickness. It is easy enough to insure against death, or destruction of property by fire or tornado, for these conditions are definite, easily demonstrable and generally understood. Illness is not a definite entity. It is not easily identified, and it is impossible to set up rules and regulations that will clearly define what is meant by the term. Every effort has been made to determine a basis for the insurance of the health of the individual, at a rate which the average individual can pay. The medical profession has never offered any objection to health and accident insurance where it is purely a matter of paying the individual when he is injured or becomes ill, a definite amount of money, the fact of illness to be left to agreement between the physician, the patient and the insurance company. The objection lies in the fact that such insurance is usually more expensive than the individual sought to be served can afford to pay. Any insurance company which undertakes to provide medical service for the sick immediately finds that it is necessary to set up multiple safeguards and limitations, else there very promptly will be bankruptcy.

As has already been said, the medical profession insists upon it that any plan to distribute medical service must preserve the personal element existing at this time in the practice of medicine. Of the many plans devised by the medical profession independ-

ently, and by other interested organizations, the most promising are those which do not utilize any of the principles of insurance, and which avoid the practices of collecting agencies. When there is insurance, usually a definite sum of money must be paid for as nearly a definite illness as can be identified in a policy. Thus a sizeable sum of money is required as a reserve, and usually a rather expensive administrative setup. Where a collecting agency is set up, there must still be overhead, and there is more than apt to be dissatisfaction with either collection or distribution, or both.

The better way to produce the results sought is for the medical profession in any given community to organize itself into a partnership, the purpose of which is to arrange for medical service for the people of the community concerned, at a rate of pay which the people concerned can afford, and allow them to pay it on some sort of installment basis. Such a plan is not feasible for a very large partnership, unless, indeed, the partnership has the protection of corporation law. The partnership could hardly be incorporated, because a corporation cannot practice medicine. The Supreme Court of the United States has already said that. Without corporate protection, large partnerships would be extremely hazardous from the standpoint of malpractice damage suits. This jeopardy would be inconsequential in small partnerships. Therefore, usually a special enabling act must be passed by the state legislature before any such partnership can be considered safe. Under such enabling act, all that is necessary is for the doctors concerned to get together, and agree among themselves to serve certain groups, organized on an income basis, at so much per month, and setting out the limitations of the service thus to be rendered. An inexpensive administrative setup is sufficient to collect the money, and a committee of the doctors concerned can easily, and usually without embarrassment, make the distribution in accordance with service rendered. Only the doctor is concerned with any such thing as a schedule of fees. The patient cares nothing about that. What he is interested in is the service.

In short, under this simple plan, supported by a state enabling act, the medical profession can proceed with the practice of medicine under the present personal arrangement. The plan has been tried out in three or four states, and is being tried out now, on a small scale, in Texas. In our little experiment only employed groups are cared for at the present time. As actuarial data accumulate, the service will be extended. Small communities where there are no employed groups, can attain the same objectives by organizing their low-income group people in accordance with their needs and their ability to pay.

Doubtless those who are behind the movement to socialize the country have concluded that because of its Good Samaritan nature, the practice of medicine should be the most readily convertible vocation. The truth of the business is, because of that very fact, medicine can never successfully be socialized; the personal element involved prevents it. It has proved to be so everywhere it has been tried.

The fact that so many of the nations of Europe have adopted socialized medicine, and that such systems appear to work fairly well over there, gives the proponents of such a scheme their principal talking point. As a matter of fact, conditions in this country are so different from those in Europe that comparison in this or any other respect is not possible. The average person in Europe has no knowledge whatsoever of the practice of medicine as it exists in America, even considering relatively the same economic brackets. The people of America would not only not be satisfied with, but would not tolerate medical service such as is provided by the panel systems of Europe. Occasionally there is a situation in this country where a modification of the panel system is in successful use, but it must be considered that our policies and procedures are simply engrafted upon such isolated situations. Were the practice of medicine throughout the country of the socialized sort, conditions would be quite different.

Every effort has been made to determine the truth of the claims of proponents and opponents of socialized medicine, as based

on conditions in Europe. There has not been much satisfaction from the many surveys of the practice of medicine in Europe, for the reason that proponents of socialized medicine are usually shown what they want to see, and they are pleased, while opponents of socialized medicine are not shown what they want to see, and they are displeased. Some years ago, the Wisconsin Medical Association sent its Secretary, Mr. J. G. Crownhart, to make such a survey in Europe and in Russia. He wrote a book about it. It is a very convincing book. He came to the conclusion that the primary reason that the people over there want sickness insurance is to provide a basis for claims under compensation wage laws. He found that when the money available for the payment of wage losses and for medical service ran low, retrenchment was invariably made in medical service. Sickness as defined by the insurance laws was usually not identical with sickness as it is understood by medical science. The physician-patient relationship was submerged in the administrative requirements. He found that complex forces were always working to limit the amount of medical service, and that it was necessary to set up elaborate systems of control to insure the government against abuses. The primary responsibility of the physician was to the government and not to the patient. The physician was required to treat his patient in the average manner, as set out by the government, and not in accordance with the latest advances in medicine, if those advances were more expensive. A significant observation was the almost invariable fact that administration requires two laymen to each physician. This makes the administrative cost relatively high, and usually the premiums were not sufficient to meet the flexible and changeable conditions of practice. The patient had no way of knowing whether he was receiving the best treatment. If the services of a physician in this country are not satisfactory, another physician is employed, and maybe a more expensive physician. But the most pertinent observation to us in this country, was that all systems of socialized medicine on the other side provided great opportunity for

political manipulation and control. As a matter of fact, free medical service on whatever basis, had in each instance been established as a matter of political expediency.

I would close by saying that the medical profession would be glad, indeed, to be rid of the responsibility of the economics of medicine, could it do so and at the same time preserve medicine as a scientific, ethical entity. It has been alleged through all time that doctors are sorry business men. That, of course, is not true. Minds capable of grasping the intricacies of the practice of medicine will usually be able to grasp the intricacies of economics or finance. The fact that doctors are nearly always devoting their whole time and attention to the study and practice of medicine very largely excludes money matters from consideration, including finance and economics. Perhaps the answer is lay management under medical control. That goes for the Government as well. The medical profession will agree to Government management, if the Government will agree to medical control.

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ACRAL GANGRENE*

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SHREVEPORT

Gangrene of the extremities is not the simple problem that it might appear to be at first thought. Acral gangrene differs in etiology and in pathology, with a concomitant difference in treatment and prognosis. The correct management of such cases requires a thorough knowledge of the various types of gangrene, their causes and their usual course under various therapeutic regimes.

CLINICAL CLASSIFICATION OF GANGRENE

It has been found expedient to classify gangrene of the extremities into two large clinical groups: First, that occurring in extremities without precedent significant

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vascular pathology, and secondly, that occurring in extremities with previous pathology. In the group without previous vascular pathology are those cases of gangrene due to: (1) Trauma; (2) thermal changes; (3) embolism; (4) chemicals or drugs; (5) infections. The group of cases in which vascular pathology pre-exists may be classified as follows: (1) Infectious, including (a) thrombo-angiitis obliterans, (b) thrombo-arteritis and (c) syphilis; (2) degenerative or arteriosclerotic, which includes (a) the senile form and (b) the pre-senile or diabetic form; (3) neurogenic form, principally Raynaud's disease. With the exception of Raynaud's disease and traumatic cases, the vast majority of instances of acral gangrene occur in the lower extremities. Obviously, the responsibility of the physician, prophylactically speaking, is much greater in those cases in which vascular pathology is present, for early diagnosis and the institution of certain preventive measures may avoid many cases of gangrene.

SIGNS OF IMPENDING GANGRENE

The clinical evidences of threatening or impending gangrene are too well known to justify more than their enumeration. The sudden appearance of a cold, pulseless extremity, with cyanosis, paleness, or a peculiar cherry-red color is significant. Pain or paresthesia is variable in occurrence. It is important to detect these changes as early as possible in order to prevent, if possible, the progression of the process to actual tissue death or gangrene.

TREATMENT OF GANGRENE NOT ASSOCIATED WITH PREVIOUS PERIPHERAL VASCULAR PATHOLOGY

To a large extent cases of gangrene or impending gangrene are not preventable except in a general sort of way. The protection against cold and trauma is not always possible. Brahdý¹ has pointed out that exposure to a temperature of below 14° F. is an industrial hazard, particularly in diabetics or arteriosclerotics and that the only satisfactory preventive, if exposure must occur, is proper clothing. Certain drugs, particularly ergot, are definitely vasospastic and numerous cases of gangrene due to its use have been reported.^{2, 3, 4} Obvious-

ly, therefore, such a drug must be used cautiously, its potential dangers realized and its use discontinued at the first indication of circulatory impairment. Similarly, it must be remembered that thrombosis may occur from stasis or pressure of pillows, in bed-ridden patients, particularly old ones; the prevention of stasis and pressure, wherever practical, may prevent certain cases of acral gangrene.

The active treatment of impending gangrene in patients without pre-existing vascular pathology is not, as a rule, very complicated. Obviously, the same accidents, the same exposures, may occur in individuals with vascular pathology, and this further complicates the treatment. It has been shown^{5, 6, 7} in cases of trauma, frostbite, ergotism, embolism and thrombosis that many of the clinical evidences of impaired circulation are not due to the actual primary pathology but to a widespread vasospasm in the same extremity, reflexly produced. Therefore, one of the prime therapeutic indications is the relaxation of such vasospasm. This may be accomplished by novocain block of the regional sympathetics,⁶ by the use of papaverine hydrochloride^{8, 9} and by the proper use of heat, both locally and reflexly.¹⁰

Too often is treatment accompanied by elevation of the extremity and the haphazard use of the heat tent. Both of these procedures may facilitate rather than retard the development of gangrene. The level of circulatory efficiency is usually a little below the level of the heart. Elevation of the extremity may not only make it more difficult for blood to pass through the arteries, but it also increases venous drainage. Venous stagnation is desirable in threatening gangrene as it causes the prolonged retention of nutritive material and may produce a more effective tissue pressure of the available blood supply by delaying its removal.^{11, 12} Similarly, the injudicious local use of heat may be distinctly harmful. As Freeman¹³ has pointed out, gangrene results from a discrepancy between tissue needs and the supply of blood to meet these demands. Moreover, tissue metabolism is increased at higher temperatures. If the

heat be excessive, it will create added demands and make the available circulation even less effective. Usually it is sufficient simply to prevent heat loss by protecting the limb with sheet cotton and perhaps the use of very moderate external heat.

Embolectomy in selected patients has proved a feasible procedure.^{14, 15} The principal difficulties are the differentiation of thrombosis from embolism, and secondly, the exact localization of the embolus. While this differentiation is not always possible clinically, it should be recalled that in embolism there is frequently a primary source for an embolus which is clinically evident, such as a valvular heart lesion (70 per cent of cases)¹⁶ and the vessels are usually previously normal. The onset of embolism is usually quite acute, and pain, though not invariable, is ordinarily quite severe. Localization is not always easy, the site of evident vascular impairment usually being some distance removed from the actual obstruction. Oscillometry and arteriography are of much assistance in this localization. Thrombosis is usually the deciding factor in gangrene from any cause, but does not occur unless there has been some previous significant vascular obstruction and stasis, either due to inflammation, organic vascular changes or pressure.

A localized infection, such as of a toe, may produce localized arteriolar thrombosis and precipitate gangrene. It is important to differentiate such an infectious gangrene from one which is primarily a vascular gangrene that has become secondarily infected. As Williams and O'Kane¹⁷ have pointed out, if there is adequate circulation and the gangrene is of infectious origin, the therapeutic indications are the treatment of the infection and a strictly localized amputation.

As a matter of fact, since in this whole group the vascular tree has been previously essentially normal, it is possible to be more or less conservative when gangrene actually develops. That is to say, since the vessels are essentially normal, collateralization is usually excellent and it is usually possible to permit more or less auto-amputation, or at least confine any amputation to the ac-

tually necrotic area after this has been well demarcated; healing usually occurs with little difficulty.

TREATMENT OF GANGRENE ASSOCIATED WITH PREVIOUS PERIPHERAL VASCULAR PATHOLOGY

Gangrene is better prevented than treated. Particularly is this true in persons with vascular disease. Obviously, any of the so-called accidents and emergencies listed in the previous group might just as well occur in a limb with previous vascular disease; this further complicates the matter. But there are a group of vascular diseases which might be recognized and gangrene prevented in many instances. The early diagnosis of such pathology is not difficult and may ordinarily be accomplished without special apparatus.^{18, 19} Clinical evidences of impaired peripheral circulation include intermittent claudication, rest pain in the legs, cold extremities, color changes, trophic disturbances and absent or deficient circulation as determined by palpation, oscillometry or some similar procedure. Once the presence of organic vascular pathology is known, two things must be attempted: (1) The development of collateral circulation, and (2) the avoidance of precipitating factors. The principal precipitating factors are: (1) Trauma, (2) infections, and (3) undue heat or cold. These factors may increase tissue demands so far beyond the ability of the deficient circulation to meet that gangrene may be thus precipitated.

The two principal vascular diseases which result in gangrene are arteriosclerosis, both senile and diabetic, and thromboangiitis obliterans or Buerger's disease.

The development of collateral circulation is usually more effective in the thromboangiitic than in the arteriosclerotic group because of the fact that usually there is more vasospasm in the case of Buerger's disease and the thrombi permit of canalization more readily than in that associated with arteriosclerosis.

These procedures, aimed at the development of collateral circulation, include principally: (1) Buerger's and Allen's active vascular exercises; (2) passive vascular exercises either with the suction-pressure boot, intermittent venous occlusion or the San-

der's oscillating bed; (3) the avoidance of tobacco, because of its vaso-constrictive effects, particularly in Buerger's disease; (4) the judicious use of alcohol and other vasodilating drugs; (5) local and reflex heat; (6) hydremic or plethoric treatment with hypertonic (5 per cent) saline infusions, and (7) the relief of pain. Not only do procedures for the relief of pain actually increase the available blood supply, but they make possible the effective use of other conservative measures that might not otherwise be tolerated.^{20, 21}

If gangrene actually develops, one can, as a general rule, be more conservative in the case of thrombo-angiitis. Conservatism, in fact, is usually used in Buerger's disease unless there is intractable pain, spreading gangrene or infection or absolutely no response to conservative measures, that is, no tendency to heal. Because of the usually associated vasospasm, measures to combat it, if present, are necessary. These include regional sympathectomy, abolition of the use of tobacco and various vasodilating drugs. The other conservative measures enumerated above are likewise more effective in Buerger's disease than in arteriosclerosis.

If amputation becomes necessary in Buerger's disease it can usually be relatively low, frequently simply a local amputation of the involved toe. The level of successful amputation will depend upon (1) the degree of vasospasm and (2) the level of circulatory efficiency. The more vasospasm and the lower the level of circulatory efficiency, the lower and more conservative can be the amputation. The degree of vasospasm may be determined by comparing skin temperatures before and after such vaso-relaxing procedures as peripheral nerve block, sympathetic block, reflex heat or anesthesia. The level of circulatory efficiency may be determined by skin temperatures, oscillograms, arteriography, the histamine test, the Matas-Moszkowicz test and, at operation, the actual appearance of the tissues.

In arteriosclerotic gangrene one can usually be less conservative and must amputate sooner and higher than in thrombo-

angiitis. Moreover, in diabetic arteriosclerotic gangrene, since there is usually a controllable additional factor (diabetes) and since the disease occurs on the average in younger individuals,²² one can be somewhat more conservative than in the senile form, unless severe spreading infection is present. Usually vasospasm is minimal in arteriosclerotic gangrene, and measures aimed at increasing collateral circulation are of questionable value.

Amputation is either emergency or elective. In the emergency type, usually spreading infection or gangrene necessitates the procedure. The usual type of amputation is the circular no-flap variety, well above the involved area.

In doing an elective amputation two things must be remembered; that the lower the amputation the lower the mortality and secondly, the prosthetic necessities must not be neglected. That is, rehabilitation must be foreseen and a usable stump should be obtained. The best elective amputations in order are: (1) Through the toes or adjacent metatarsals; (2) Syme's ankle amputation (if one is sure to be able to secure a good prosthesis); (3) Smith's mid-leg amputation; (4) Callander's transcondylar amputation, and (5) Gritti-Stokes' supracondylar amputation.

SUMMARY AND CONCLUSIONS

1. Acral gangrene may be clinically classified into that occurring in limbs previously free of vascular pathology and that occurring in limbs with pre-existent peripheral vascular disease.

2. Little can be done to prevent gangrene occurring in previously normal legs except in a general way, but if gangrene occurs, the essential treatment is relaxation of associated vasospasm.

3. The early diagnosis of peripheral vascular disease is essential in the prevention of gangrene in these cases.

4. Once peripheral vascular disease is known to be present, attempt must be made to develop collateral circulation and to avoid precipitating factors, principally trauma, infections or excessive heat or cold.

5. Development of collaterals is usually more effective in thrombo-angiitis than in arteriosclerosis.

6. Amputations in thrombo-angiitis can usually be more conservative than in arteriosclerotic gangrene.

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DISCUSSION

Dr. Michael DeBakey (New Orleans): The thorough, lucid, and perspicuous presentation of Dr. Abramson deserves special commendation. In a complete but succinct manner he has developed the subject of acral gangrene on a rational basis and elucidated its modern conception. His presentation further serves as an indication of the rapid

strides that have occurred in peripheral vascular disease during recent years.

Not less than a decade ago a consideration of the subject of gangrene of the extremities would have consisted essentially of a discussion of its pathologic and surgical phases. Moreover, the treatment of peripheral vascular disease was somewhat synonymous with that of acral gangrene. However, during the past decade rapid advances have been made, particularly in the methods of study of the peripheral circulation, and as a result of these intensive investigations there has evolved a more rational conception of peripheral vascular disease. Accordingly there has developed an increasing recognition of the associated fundamental physiologic derangement which in peripheral vascular disease precedes the more apparent anatomic-pathologic changes manifested by gangrene.

Actually peripheral vascular disease signifies in its simplest terms a disturbance or actual diminution in the normal amount of circulating blood to a part. When this decrease attains a degree insufficient to meet the demands of the tissues, gangrene results. However, this is the terminal stage and obviously effective therapeutics must be instituted before this late stage has been reached, when irreparable damage to tissue has occurred. For this reason it becomes increasingly significant that peripheral vascular diseases should be considered in the light of disturbed physiology rather than as pathologic lesions. On the basis of this concept the decrease in circulating blood to the peripheral tissues may be due to two factors; (1) obliterative structural change in the vessels, and (2) abnormal vessel spasticity. Whereas both the factors may be present, one or the other usually predominates. However, of greater significance is the fact that although the former is an unalterable pathologic lesion which resists any therapeutic attack, the latter is a physiologic or functional derangement which can be satisfactorily influenced by appropriate therapy. Effective therapeutics in peripheral vascular disease consists essentially in increasing the blood supply to the part. This obviously cannot be accomplished by an attack upon vessels which have already undergone structural change. On the other hand, vasospasm is not an unalterable pathologic lesion, but is primarily a functional disturbance of the vessels which is amenable to certain therapeutic measures. Accordingly successful therapy in peripheral vascular disease must be based upon an attempt to relieve vasospasm or produce vasodilation.

This rational conception of peripheral vascular disease forms the basis of the classification described by Ochsner and DeBakey, that is, (1) vasospastic functional disease, (2) vasospastic organic disease, and (3) organic degenerative disease. This classification clearly emphasizes the decisive importance of vessel spasticity. It should be realized, of course, that whereas vasospasm may be the

predominant factor in certain types of peripheral vascular disease in which there is little or no structural vascular change, it exists also in those conditions in which organic vessel disease is the prominent feature as it may involve the collateral vessels. Thus, the determination of the presence or absence of vasospasm and its extent becomes of increasing prognostic and therapeutic significance. Its importance therefore has been justifiably emphasized by Dr. Abramson whose scholarly discourse has been not only enjoyable but most gratifying to one particularly interested in this rapidly developing subject. His review of the literature has been pertinent,⁵ extensive, and thorough, and the publication of this excellent presentation will serve as a further source of exhaustive information on this subject of growing importance.

Dr. Isidore Cohn (New Orleans): The paper which Dr. Abramson has presented is a splendid summary both of the literature and his personal experience in the management of vascular diseases involving the extremities. It represents a tremendous amount of literary research, as well as the utilization practically of the information which he has obtained.

In the early paragraphs of the paper he spoke of the necessity of being gangrene conscious. That implies that no physical examination is complete without determining whether the dorsalis pedis and the posterior tibial pulses are palpable. If this becomes a routine practice in physical examinations many cases of vascular disease involving peripheral vessels will be picked up earlier than they are at the present time. The more we look for things the more we find them.

I can subscribe heartily to all that Dr. Abramson has said with reference to embolism. The earlier operation is performed, the better the results will be. Local and general heparization are indicated as has been shown by the work of Murray of Toronto.

The attitude which one assumes toward so-called peripheral vascular diseases varies in proportion as he believes that it is limited to the periphery and the extent to which he believes that vasospasm in organic diseases is the important factor.

It is my conviction that thrombo-angiitis obliterans or Buerger's disease is essentially a disease generalized in character involving the entire vascular tree, even the coronary vessels. If it can be shown that spasm is the predominant factor, the release of vasoconstrictor factors is justifiable. When organic changes are present, localized operative procedures are not indicated in my opinion. The general management of the feet of those afflicted with vascular disturbances as outlined in the paper is extremely important. May I stress the need for intelligent advice to all elderly people with regard to proper protection to their hands and feet.

I can attest to an experience with simple mechanical measures, such as pavaex of Herrmann and Reed in Buerger's disease, diabetes, and arteriosclerosis, over a period of eight or nine years. The results have been good, not uniformly successful. Extravagant claims for any particular procedure are not justified by end results.

THE WATERHOUSE-FRIDERICHSEN SYNDROME*

(ACUTE BILATERAL SUPRARENAL HEMORRHAGE)

A REVIEW OF THE LITERATURE AND A REPORT OF TWO CASES

W. F. DRUMMOND, M. D.†

AND

T. B. TOOKE, JR., M. D.†
SHREVEPORT

The disease now known as the Waterhouse-Friderichsen syndrome was recognized as an entity by Little¹ in 1901. In 1911 Waterhouse² reported a case and reviewed fifteen others. He described the syndrome and gave an accurate account of the symptomatology and pathology. Friderichsen,³ in 1918, published a report of two cases of his own and reviewed the twenty-eight cases in the literature at that time. In 1934 Bamatter⁴ published a report of thirty-eight cases, two of which were his own. Important reviews of the literature have been published by Aegerter⁵ in 1936, Sacks⁶ in 1937, Kunstadter⁷ in 1939, Moss and Schenken⁸ in 1940 and Lindsay et al.⁹ in 1941, the latter authors collecting 89 cases and adding seven of their own. Since that publication two cases⁸ have been added; the addition of our two cases brings the total to 100 now on record, of which 42 have been reported from the United States.

The following two cases are presented as an atypical and a classical example of the Waterhouse-Friderichsen syndrome and are illustrative of the pathologic findings in this condition:

*Read before the sixty-second annual meeting of the Louisiana State Medical Society, Shreveport, April 22, 1941.

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CASE NO. 1

A. M., a colored male, aged 31, was first seen at 11:30 a. m. December 4, 1940, having a severe chill and a temperature of 104° F. He gave the following brief history: For the past ten days he had noticed mild pains in his hands and feet but otherwise had been in good health until 10:00 a. m. December 4, when, while working in a boiler room, he felt as if he had gotten too hot. After a rest he began work again but soon had the aforementioned chill.

When first seen the impression was that the patient had a left lower lobar pneumonia. The red blood cell count was 4,560,000, white blood cell count 15,950 with 80 per cent polymorphonuclear leukocytes and 20 per cent small lymphocytes. He was immediately hospitalized and sulfathiazole started (grains 30 every four hours). At 6:00 p. m. the patient appeared to be much worse, temperature was 104.3° F., pulse 128, respiration 46 and blood pressure 60/0. During the night he was given metrazole, oxygen, glucose and saline; and the following morning his temperature was 98° F., pulse 140, and blood pressure 70/50. Blood studies at this time showed a red cell count of 5,090,000, hemoglobin 98 per cent and a white cell count of 22,100 with 94 per cent polymorphonuclear cells. Blood sulfathiazole was reported as 4.0 mgm./100 c.c. A 24 hour blood culture was reported as negative and an x-ray of his chest showed no pneumonic infiltration. The patient was rational but extremely apprehensive. He had complained considerably during the night of a "stomach ache" and had vomited a large amount of "dark-brown coffee-appearing fluid."

Because of the change in the clinical picture, sulfathiazole was discontinued and morphine, saline, glucose and 500 c.c. of whole blood were given. Even though such supportive therapy gave a blood pressure reading of 80/50 the patient rapidly lapsed into coma, his temperature rose to 105° F., and he expired at 8:20 p. m. December 5, 1940, 34 hours after the onset of his first symptom. Shortly before death catheterization yielded no urine.

Except for the observations mentioned there were no other physical signs noted. There was a hyperemia of the conjunctivae which increased to rather extensive subconjunctival hemorrhage at the time of death. No other purpuric manifestations were noted. The abdomen remained soft and flat throughout the course of the illness. The antemortem blood culture remained negative. A stool specimen showed much mucus with some red blood. Stool cultures were negative for the typhoid-dysentery group but did show a heavy growth of hemolytic *E. coli*.

Necropsy: Postmortem examination showed a well nourished and well developed colored male. The conjunctivae were quite red, with petechiae and ecchymoses abundant in the bulbar portion.

The nail beds were pink and free from petechiae. There were no abnormal pigmentations or discolorations of the skin.

The meninges were injected but showed no exudate. The convolutions of the hemispheres were flattened, with corresponding narrowing of the sulci. The lateral ventricles were of normal size with a smooth grayish-pink lining. The choroid plexus was dark red and contained one 6 mm. sized cyst. The cut surfaces of the brain were slightly bulging, the small vessels were filled with blood and there was a diffuse wetness. The brain substance was softer than normal. The lining of the fourth ventricle showed several large ecchymoses. Except for congestion and slight perivascular hemorrhages the microscopic sections were without significance.

The lungs were non-adherent and neither lung cavity contained free fluid. Many petechial hemorrhages were present in the visceral pleura. Also, dark red slightly raised broad bulgings were observed in both lower lobes. Section of those showed dark red, moist, bloody surfaces. The soft tissues in the mediastinum and thymus were quite edematous and petechial hemorrhages were observed rather diffusely.

The pericardial sac contained about 60 c.c. of straw colored fluid. Petechiae and ecchymoses were diffusely distributed in both layers of the pericardium and were especially abundant near the cardiac base.

There was no free fluid in the abdominal cavity. Petechiae and ecchymoses were observed here as in the other serous surfaces. The mesentery and retroperitoneal tissue were edematous and studded with small hemorrhages.

The spleen was shrunken and weighed less than 10 grams. Microscopic examination showed a thick acellular capsule with the architecture of the gland obliterated by thick trabecular cords of dense fibrous tissue. The malpighian bodies could not be identified. The red cells were not sickled.

The renal pelves were of normal size and their lining showed small and large hemorrhages. Microscopic sections showed marked congestion and hemorrhage into the tubules.

The adrenals weighed together 14 grams. A normal yellow cortex was replaced, except for small areas, by dark red hemorrhagic discoloration. The medullary portion was of the same color. Microscopic examination showed the greater portion of the organ obliterated by diffuse hemorrhage, unassociated with thrombosis.

The lining of the intestinal tract showed the same mucosal petechiae, in some areas measuring 1 cm. in diameter.

No organisms were demonstrable in any of the microscopic sections.

CASE NO. 2

Mrs. C. H. G., aged 40, a white married female, was admitted to the hospital at 12:00 noon, January 2, 1941, and expired 14 hours later.

Except for an abscessed tooth which had been treated some time previously the patient was asymptomatic and partaking of her usual household activities until January 1, 1941, when at about 9:00 p. m. she complained of a mild sore throat and thought that she was taking the "flu." Though she slept the greater part of the night she complained of feeling chilly, had some abdominal cramps, mild nausea and vomited twice. When her husband left at 9:00 a. m. the next morning she was asleep and apparently looked well.

When seen in the home two hours later she was complaining of abdominal cramps, painful joints on the least motion, and a generalized purpuric eruption. She appeared to be in shock with a subnormal temperature, feeble pulse of 120 and blood pressure 60/40.

When admitted to the hospital her temperature was 102°F., pulse 160 (?), respiration 46 and blood pressure 42/0. Though slightly stuporous she was quite cooperative. The body was covered with fine dark colored petechiae, implanted on a mottled cyanotic skin. The conjunctivae and gums were not spared. Within the hour these petechial areas were irregular shaped, coalescing, port-wine colored, ecchymotic splotches which gradually increased in size so that the whole body assumed the appearance of postmortem lividity.

The pupils were small (morphine having been given in the home), regular and equal, though reacted rather sluggishly to light. The neck was not stiff. Excruciating pain was experienced when any joint was manipulated though none were swollen. The abdomen was slightly distended and showed moderate tenderness throughout but no masses or areas of muscular rigidity were present.

The laboratory findings showed a red cell count of 4,920,000 and a white cell count of 58,900 with 5 per cent metamyelocytes, 13 per cent myelocytes, and 76 per cent segmented and non-segmented polymorphonuclear leukocytes. The platelet count was 210,000, the bleeding time one minute 30 seconds and the coagulation time two minutes. Blood culture reported 24 hours after admission was negative.

The patient was immediately given whole blood, large doses of saline, dextrose and eschatin intravenously. Immediately following such her pulse could be counted at 140 and blood pressure 60/40. At this time, about five hours after admission, she voided about 20 c.c. of bright red urine. She soon lapsed into coma, temperature, pulse, and respiration gradually mounted and in spite of adrenalalin, eschatin, saline, sulfanilamide and meningococcus antitoxin (80,000 units) intravenously, she progressed rapidly downhill. Twelve hours after admission she developed a stiff neck. Spinal fluid examination at this time showed a pressure of 11 cm., a clear fluid with 8 cells, 7 polymorphonuclear leukocytes and 1 small lymphocyte. No red blood cells were present. Direct smears of the spinal

fluid showed no organisms and the culture was reported later to be negative. Two hours later she expired. Postmortem cardiac blood culture was reported as negative.

Necropsy: The body was covered with slightly raised violet to dusty-red colored, diffusely mottled areas varying in size from a few millimeters in diameter to huge confluent areas. The legs and lower thirds of the thighs were entirely discolored by confluence of these purpuric areas and foci.

The pleural spaces were free of fluid and the pleural layers showed no petechiae.

Three or four flea-bitten hemorrhages were present in the epicardium covering the base of the heart. The myocardium was grayish red, slightly swollen and softer than normal. A band-like hemorrhage extended from the base of the aortic orifice beneath the endocardium to the posterior wall of the left ventricle.

The peritoneum was bluish grey in color and free from hemorrhages. The mesenteric vessels were quite distended with blood. The liver was without consequence as was the spleen, except for acute hyperplasia (septic splenitis). The intestinal mucosa was explored throughout and free of petechiae except for several short segments of the ileum. Both renal pelves showed innumerable small hemorrhages. The urinary bladder contained a small amount of smoky urine and its mucosa showed an occasional dark red hemorrhage.

The adrenals weighed together about 20 grams, were dark red in color and the gross architecture was destroyed by massive diffuse hemorrhage. Microscopic sections showed the same as the gross. Sections of the adrenals stained by Gram's method showed rare isolated bodies resembling negative cocci. Since none were found in clusters or diplo the exact morphology of these organisms must remain in doubt.

The brain was not examined, since the spinal fluid taken a short time before death was normal.

SYMPTOMATOLOGY

The history and symptoms are so frequently repeated in the reports of other cases that a no more dramatic episode may face the clinician than the evolution of the so-called Waterhouse-Friderichsen syndrome. The majority of cases occur in patients under the age of one year. Aegerter states that 70 per cent of the patients have been under two years of age and Lindsay et al. report 90 per cent occurring in children under the age of nine years. Although the syndrome is most frequent in children, only seven cases are reported in American pediatric literature.¹⁰

The typical history states that the patient was in perfect health until the onset

of the disease. The only cases without sudden onset are those complicated with other conditions which might alter the characteristic early signs.

The signs and symptoms, though not characteristic at the onset, gradually crystallize into an unmistakable pattern. The initial symptom may be restlessness, headache or malaise but is more likely to be referred to the gastrointestinal tract. Vomiting is an early feature and abdominal pain is mentioned frequently enough to make its occurrence more than coincidence. This is found to be as frequent in adults as in children. Anorexia, a flushed face, and perhaps a moderate amount of fever may be the only signals to warn the parent of the child's impending condition. The patient soon becomes stuporous and this may be mistaken for healthy slumber.

Within eight to 12 hours of the onset a striking cyanosis occurs. This is frequently the first symptom that impresses the gravity of the condition on the mind of the relative or friend and brings the patient to the physician. Sacks notes that the cyanosis was present in 46 per cent of the cases and varied from a deep blue, involving both the lips and the nails, to an alternation of cyanosis with pallor. Occasionally a cyanotic mottling is present. This deep cyanosis, when present in an acutely ill child, is diagnostic. Following the cyanosis, petechial mottling of any part of the body appears. Their onset is sudden and they increase in size with astonishing rapidity into a vivid purple macular rash. It is frequently noted that the rash was not present when the child left the house for the hospital; or as in Kunstadter's case, a graduate nurse observed the child to become cyanotic and the skin ecchymotic while she "watched dumb-founded." As the hemorrhage involves more and more of the skin area, the body surface assumes the postmortem lividity described by Aegerter. In a small proportion of cases the hemorrhage into the skin does not advance beyond the petechial stage. Concomitantly with the appearance of the rash, or shortly following, the individual becomes stuporous or semicomatose. Out of 66 cases

that could be reviewed, fourteen showed neither macular nor petechial hemorrhages.

At this time the patient is acutely ill. There is a characteristically septic spiking temperature. Early in the disease the increase in pulse rate is proportionate to the rise in temperature, but as the disease progresses the rate mounts as the circulatory system fails. When the adrenal damage has taken place the extremities are cold, while the body is hot. Symptoms of early meningeal involvement are not uncommon at this time though neurologic examination gives variable results. Spinal fluid examination at this time is of interest by the infrequency of abnormal findings. Less common neurologic findings, as listed by Aegerter, include muscle flaccidity, tremor, strabismus, altered reflexes, convulsions and rigidity of the abdominal muscles.

Laboratory examinations may not be helpful. A leukocytosis would be expected. Bleeding and coagulation time are normal. Platelet counts are usually within normal limits. Slight elevation of non-protein nitrogen is expected because of the peripheral circulatory failure. Bamatter states that low blood sugar values are pathognomonic of the disease condition, nevertheless concludes that the converse may be true as evidenced in his own case report.

PATHIOLOGY

The most constant pathologic condition at autopsy is massive adrenal hemorrhage, occurring in 95 per cent of the reported cases, according to Aegerter. These findings vary from petechial hemorrhage to bleeding, converting the gland into an immense necrotic purple "blood cyst." When the bleeding is mild in degree it is generally stated that the medulla is more involved than the cortex. In unilateral hemorrhage the right adrenal is more often damaged than the left. Microscopically there is complete obliteration of all three glandular layers.

In about half of the cases small hemorrhages are present in the serosa of the peritoneum, pleurae or pericardium. A few reports mention hemorrhage into the mucosa of the gastrointestinal tract. This according to McLean and Caffey¹¹ may account for

the abdominal pain and diarrhea sometimes seen.

Rabinowitz¹² and Bamatter have drawn attention to the prominence of the thymolymphatic system in those who succumb to this disease condition. The weight of the gland is reported from 17 grams to 41 grams, with an average of about 25 grams. Enlarged and often hemorrhagic, bronchial, mediastinal, mesenteric glands, and Peyer's patches are frequently present. The definite relationship of these findings to the controversial "status thymolymphaticus" remains unknown.

ETIOLOGY

Up until 1916, the number and variety of organisms cultured from blood, adrenal gland, and skin lesions included the streptococcus, the staphylococcus, colon bacillus, *Bacillus pyocyaneus*, *Bacillus Friedländer* and the pneumococcus. Of the 38 cases collected by Bamatter in 1934 the etiologic agent had been isolated in only 10, perhaps, as has been suggested because of faulty methods employed in many of the early cases. Since that time the meningococcus has been identified as the causative organism with increasing frequency and there is little doubt that the disease syndrome is most frequently caused by the meningococcus. The only other organism obtained with any frequency is the *Streptococcus hemolyticus* though recently Lindsay et al. report the *Haemophilus influenzae* as isolated from both the heart's blood and cisternal fluid in two cases.

It is interesting to attempt correlation of the pathologic changes and possible etiology with the more or less characteristic clinical and laboratory manifestations of this syndrome. Such clinical findings as hypotension, low blood sugar, low carbon dioxide combining power, elevated non-protein nitrogen, weakness, muscle flaccidity, vomiting and circulatory collapse have long been accredited to the functional failure of the adrenal gland. Various theories have been advanced as to the causation of the adrenal failure, though a combination of venous thrombosis and an increased permeability due to toxins from virulent organisms

lodged in the vessels perhaps explains the majority of cases. It is now well recognized that the adrenal gland exerts a controlling influence on the metabolism of sodium ion excretion and in acute adrenal failure depleting the blood of both sodium and chloride. Concurrent with the loss in sodium is a relative dehydration in the kidneys. Thus the actual blood volume may be diminished, which conceivably might result in shock with its resulting chain of symptoms. If there is a marked fall in the blood sodium concentration, one may assume that death is probably due, in part at least, to the collapse following adrenal destruction.

TREATMENT

Since the diagnosis must be corroborated by postmortem observation it is difficult to evaluate the effect of adequate therapy. According to the pathology, therapy should theoretically consist of: (1) Measures to combat the suprarenal damage; (2) measures to combat the invading organism; and (3) supportive treatment.

Though there is no evidence that epinephrine is responsible for the maintenance of normal blood pressure,¹³ it does seem to increase the potency of cortical extract and should be supplied with cortin in a desperate effort to maintain somatic equilibrium.

If adrenal hemorrhage causes a rapid loss of the sodium ion from the blood stream with resulting diminished blood volume and shock, it would seem rational to replace the sodium ion with intravenous sodium chloride. This can be given in glucose to combat the hypoglycemia, acidosis and dehydration.

Since the majority of cases are due to the meningococcus, antimeningococcus antitoxin should be given intravenously. Lindsay feels that anti-influenzal serum should be administered intramuscularly as well because of the delay in bacteriologic reports.

Although sulfanilamide has been favored by the majority of investigators, and its therapeutic effect against the meningococcus has been proved repeatedly since the work of Schwentker¹⁴ in 1937, it is possible, judging from recent reports, that sulapyridine will replace it as the drug of choice. Stott and Copeman,¹⁵ during the prevalence of cerebrospinal fever and

chronic meningococcic septicemia in the recent British Expeditionary Force, are quite convinced of the therapeutic effectiveness and superiority of sulfapyridine to sulfanilamide. Sulfapyridine also has the advantage of being active against the pneumococcus, a possible etiologic agent in this condition. That sulfanilamide is of little value in meningitis due to the *Haemophilus influenzae* is well established, but encouraging results have been obtained by Neal, Appelbaum and Jackson¹⁶ in the use of sulfapyridine in this condition. Though sulfathiazole is effective against the meningococcus, pneumococcus, staphylococcus and the *Haemophilus influenzae*¹⁷ the necessity of intrathecal administration because of the non-diffusibility of the drug into the spinal fluid should not limit its use in this syndrome unless further investigational use proves its inferiority.

Due to the fulminating character of this malignant syndrome, an immediate supply of the above mentioned therapeutic measures is essential if we hope to reduce the present 100 per cent mortality. Carey¹⁸ has recently reported a case of recovery in a 27 year old white female, although therapy was not instituted for approximately 21 hours after the onset of symptoms; his success in an apparent case of this nature is encouraging.

COMMENT

Attention is drawn to the ease of diagnosis of the Waterhouse-Friderichsen syndrome if the condition is kept in mind. In the colored race if the purpuric manifestations are mild the condition is easily overlooked. This perhaps explains the nil reports of this disease entity occurring in an adult negro. That the meningococcus is not the sole cause of the disease syndrome must again be emphasized.

SUMMARY

The Waterhouse-Friderichsen syndrome was first accurately described in the literature in 1901. The symptomatology includes sudden onset, malaise, restlessness and often gastrointestinal symptoms. These are followed shortly by lethargy which rapidly deepens into coma. High fever, weak, rapid

pulse, intense cyanosis and purpuric hemorrhages into the skin are characteristic. The disease is usually fatal in from sixteen to twenty-four hours. Massive bilateral adrenal hemorrhage is the most common post-mortem observation. The etiology is probably a fulminating septicemia. Suggested therapy includes adrenal cortex extract, epinephrine, sodium chloride, fluids, anti-meningococcus antitoxin, sulfapyridine, dextrose, blood transfusions and supportive therapy.

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DISCUSSION

Dr. T. B. Tooke, Jr. (Shreveport): As co-author, there is little for me to add to Dr. Drummond's dissertation. We present these cases in full recognition of the fact that Drs. Moss and Schen-

ken presented two cases of this syndrome a year ago before this same gathering.

However, because of the relative paucity of reports on this disease, we feel justified in bringing these two additional cases to your attention. In order to recognize this syndrome, one has only to keep its possibility in mind because there can be no picture any more striking than has occurred in practically every case history that one reads in the literature. True that to the present, little or nothing of any avail can be done from a therapeutic standpoint; still diagnosis remains vitally important. Certainly if any treatment will ever be successful in such a fulminating disease, immediate recognition will be necessary.

Practically all those men who have seen and reported this syndrome have expressed the opinion that it has occurred far more frequently than has been recognized. The occurrence of two cases within a month of each other in our Clinic leads us to the same opinion.

In addition these two cases add to the small percentage of occurrence in adults since as Dr. Drummond has pointed out, 90 per cent of all reported cases have occurred in children under nine years of age. No one has ever reported as having observed this syndrome in the negro.

Finally, we regret that in our failure to isolate a causative organism, we add little to the somewhat controversial question of etiology.

Dr. Ralph Talbot (Monroe): I saw a child who had exstrophy of the bladder. No surgery was done because it was a hopeless thing. The resident told me at once, "This baby will die suddenly and you will find at autopsy that the suprarenals are large and hemorrhagic." The baby died and the supra-adrenal glands were very large. I know there is no connection between this case and Waterhouse-Friderichsen syndrome but it occurred to me that it might have been something on the same order.

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SOME RADIOLOGIC PROBLEMS IN STUDIES OF THE CHEST*

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AND

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NEW ORLEANS

In recent years there has been considerable interest taken in routine mass x-ray surveys of the chests of groups of individuals. Industry has played its part in endeavoring to eliminate before employment those individuals who might subsequently

become a liability because of the hazards of their work. This is particularly true in those industries in which the workmen are exposed to unusual amounts of silica or other irritant dust. Routine x-ray chest surveys also furnish the employer, in the case of those who are accepted for employment, with a concrete record of the condition of the employee's lungs and heart, at the time of his connection with the firm. Anyone who has any experience with the Workmen's Compensation law or similar lawsuits will immediately see how valuable such a record might be. To the individual employee a pre-existing radiograph of his chest may be of considerable value, in case of subsequent illness, for comparison with radiographs made at the time of his illness.

Group radiographic surveys of individuals already employed, if made semi-annually, annually, or even bi-annually also provide some measure of protection from a health hazard standpoint to both the individual employee and to the employer.

Similarly some medical schools and schools of nursing have been adopting these routine x-ray surveys as a protective measure mainly to the individual student. The upsurge in preventive and socialized medicine during the present administration has encouraged many local and state health authorities to embark on similar surveys.

Where great numbers of individuals are to be surveyed, as in city or statewide surveys the cost of such a survey has been previously nearly prohibitive. In recent years, however, a method of photographing the fluoroscopic image of the chest has been developed which has brought the cost down to practical levels. By means of special apparatus such photo-roentgenographs are made on either 4 x 5 inch films or on 35 mm. films. Since the cost of a 4 x 5 film and the processing thereof is about 10 per cent of a 14 x 17 inch film, which is the size ordinarily used in chest work, a very material saving is effected. These miniature films are unusually accurate. In a series of 1610 persons, Potter, Douglas, and Birkelo report only 2.6 per cent error in detecting 271 persons with active tuberculosis. In other words, they are 97.4 per cent efficient, even

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including minimal lesions. They are large enough to view directly without enlargement or projection. The smaller 35 mm. films are not quite as accurate as regards minimal lesions and require enlargement before they can be viewed satisfactorily. When an active or doubtful case is picked up the usual 14 x 17 film is made of the individual. We understand, however, that the U. S. Army has taken priority on all the suitable lenses presently available for this type of work for use in the various army camps.

SURVEYS

Since 1935 we have been making surveys of the chests of the employees of the Johns-Manville plant in Marrero, La., using, however, 14 x 17 films. As you know the Johns-Manville Co. is a manufacturer of asbestos products which have supposedly a silica dust hazard. However, out of 750 examinations we have found only 57 chests which we regarded as pathologic and of these only five were considered pneumoconiotic. This is considerably below the per cent of pneumoconiosis or asbestosis one would expect from similar surveys in other localities. It may be that the high relative humidity of our climate reduces the risk in this section, or possibly the modern safety and protection methods of ventilation are responsible.

We have also surveyed the students at the L. S. U. Medical Center in New Orleans during 1938, 1939, and 1940, raying in all 593. Eighty-six of these showed some pathologic changes in the lungs or heart, most of them only minor variations from the normal. There were, however, seven cases of active tuberculosis detected. Incidentally one student showed large rounded masses in the lungs which we interpreted as metastatic malignancy, as findings were typical. A review of his case with his physician revealed that the condition had existed for several years. Subsequent x-rays covering a period of six months from our initial examination show no change from the original, so our diagnosis of metastatic malignancy has had to be revised. Metastatic malignancy usually increases in size or new lesions develop.

PLANIGRAPH AND BUCKY FILMS

In some hospitals and private laboratories a recent development has been radiographs of the chest taken by means of an apparatus known as the planigraph. By it, x-rays can be made of any given plane in the body. This is an extremely valuable method in certain instances, and is just in its infancy. However, the equipment is expensive and complicated. We feel that in the absence of such equipment we can approach its present accomplishments in many cases by means of films of the chest made with the Bucky diaphragm which is present in every x-ray laboratory. Two recent cases will serve to illustrate: Case 1 on the ordinary x-ray film was diagnosed as pneumonia of the right upper lobe. However, his clinical course did not follow that of pneumonia and a Bucky film was made. Instead of the homogeneous density of a pneumonia consolidation, several cavities were demonstrated and the proper diagnosis of tuberculosis established. Case 2 showed on the ordinary film a large homogeneous increase of density over the left infraclavicular area and a valid interpretation of pneumonia was made. Again, however, the clinical picture did not fit in with this, and a Bucky film was made, demonstrating two large abscesses of the upper lobe.

Bucky films are valuable often in pneumothorax work to demonstrate pleural adhesions, the presence of uncollapsed cavities in the collapsed lung and often to demonstrate the location of the trachea which may be of importance at times. We do not believe sufficient use of Bucky films of the lung is made and urge their application in any doubtful case of apparently homogeneous consolidations of the lungs.

CORRELATION OF X-RAY AND CLINICAL FINDINGS

One point we always like to stress in any x-ray paper is close correlation of x-ray and clinical findings. After all, the radiograph is simply another means of physical examination and repeated examinations may be necessary to arrive at proper diagnosis. If the radiologist feels that it is indicated he should insist on an additional x-ray examination after a sufficient lapse of time. On

the other hand, if the clinician does not believe the radiologist's diagnosis fits the clinical picture we believe he should, after consulting with the radiologist, request another x-ray examination after due time. In many cases the referring physician should consult with the radiologist, look at the films of his patient, and check them with the physical and clinical findings. All will benefit from this procedure, the referring physician, the radiologist and above all the patient.

DISCUSSION

Dr. C. P. Rutledge (Shreveport): I will not attempt to discuss this paper in detail but will discuss just one certain point—the use of the Potter Bucky diaphragm. Drs. Fortier and Gately mentioned the use of the planigraph in making films of the chest at different levels. They also stated that this equipment is not available to many of us on account of its expense. It has been found that the use of Bucky films is, as stated, valuable in certain cases. In many cases where plain films or routine exposures are made, shadows are found with which we are not satisfied. Here the Bucky film can wipe out superficial shadows and help to arrive at a true diagnosis. Along this line it was my good fortune in the last few days to have a most interesting case, and I will show slides of this case.

This patient came to me with gallbladder symptoms. The physician who referred this patient thought that she had gallbladder disease and said that he heard something unusual in the chest. A routine chest film gave the impression of a pericarditis with effusion. When a Bucky film was made the heart shadow could be outlined nicely. There were also some gas shadows in the thoracic cavity and I advised a study of the gastrointestinal tract. In this slide you can see an inverted stomach well up in the chest cavity. This slide shows the gas bubble with a fluid level and the pylorus all above the diaphragm. The next slide is a twenty-four hour study after the barium meal, showing the transverse colon above the diaphragm; and the hepatic flexure occupying an oblique position in the right abdomen. The next slide shows, with the barium enema, the transverse colon well up in the thoracic cavity with evidence of its having passed through a relaxed esophageal hiatus.

I find partial herniation of the stomach through a relaxed hiatus quite often but this is the most extreme case that I have ever seen. It is most unusual for the transverse colon to pass through a relaxed esophageal hiatus.

Dr. Stakely Hatchette (Lake Charles): There is one thing that perhaps Drs. Fortier and Gately and Dr. Rutledge have overlooked in the discussion of making diagnoses of lesions in the chest. I am sure this was not intentional on their part.

It is something that I would like to bring out because I think it is of practical value to most of us; that is, the making of views in various positions. In making a diagnosis of lesions of the chest they did not mention the value of the lateral or oblique views.

I would like to re-emphasize the use of the Bucky diaphragm. That has helped out a number of times when it was impossible to get sufficient penetration in the roentgenogram.

Dr. L. A. Fortier (In closing): In a paper to be read in a short time we could not take up all of the well known details of examination. I am glad Dr. Hatchette brought out the oblique position. I thought the Bucky diaphragm important and wanted to stress that in examination of the chest.

RADIATION AND SURGICAL TREATMENT OF MALIGNANCY IN PARANASAL SINUSES*

W. L. ATKINS, M. D.
SHREVEPORT

The subject that I have selected is not a new one by any means, and therefore I am not going to offer an apology. The textbooks offer very little information on this subject. It is my purpose in this paper to review some of the phases of treatment of the tumors of the accessory sinuses.

I do not believe that any part of the body produces as many complicating factors as does the region about the nasal sinuses. The primary site or origin growth of a tumor is often difficult and almost impossible to determine because a blockage of the natural drainage of the sinuses and infection produces an inflammatory condition of the tissue which makes it very hard to differentiate from tumor tissue. Mixed infections often complicate diagnoses.

According to Quick,¹ of Memorial Hospital, the complex embryology of the parts under discussion affords opportunity of tumor origin from many developmental anomalies, hence, a wide range of tumor type is met with. Ewing has enumerated thirty-seven varieties of growth found in or about the paranasal sinuses. The majority of

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these thirty-seven varieties are found in the maxillary antrum. It is impossible to say whether these growths in the antrum are primary or are secondary extension from some of the other nearby sinuses. The inflammatory condition often masks the true diagnosis. My connection with the ear, nose and throat department of the Tumor Clinic has brought me in contact with more tumors involving the antrum than any of the other sinuses. Fabricant² states that of 249 cases of malignant tumor of the head, only seven malignant cases of the antrum and one of the frontal sinuses were reported. This report covers a period of seven years of the Research and Educational Hospital in Chicago, where the yearly admission to the nose and throat clinic averages about 2,500.

The maxillary sinus is the most frequently involved, and the ethmoid is the next in order. The sphenoid and frontal are involved by extension, but the involvement of the frontal is rare. The manner of extension is significant. If the tumor originates in the antrum the extension is usually by way of the ethmoid and sphenoid. If the growth originates in the ethmoid it is most likely to extend to the antrum or the sphenoid, almost always ignoring the frontal. It is very fortunate that the maxillary is first involved, as this gives the operator a better point of attack for a radical operation, or an easy approach for the application of radium.

A very large variety of benign and malignant tumors occur in and about the paranasal sinuses; as I have stated above, this variety is due to the complex embryology. The anatomic nature of the sinus favors infection and influences the growth and development of the tumors. While these tumors are not essentially primary in the sinuses, they are, for practical purposes, included in the following classification, according to Bernard Widmann:³

Benign Tumors

Polyp
Adenoma
Angioma

Benign or Malignant

Dermoid tumors
Teratoma
Plasma-cell tumors

Osteoma
Fibroma
Chondroma
Osteochondroma
Giant cell tumors
Dental cysts
Odontoma
Carcinoma
Squamous cell
Basal cell
Transitional cell
Cylindrical cell
Round cell

Malignant Tumors

Melanoma
Osteosarcoma
Myxosarcoma
Angiosarcoma
Chondrosarcoma
Fibrosarcoma
Lymphosarcoma
Myeloma

Gordon B. New,⁴ of Mayo Clinic, states that it is safe to say that in the last fifteen years there has been no greater advance in treatment of malignant tumors than in treatment of the malignant growth of the upper jaw and sinuses.

DIAGNOSIS

It is very essential to get a positive diagnosis early, if anything like good results are to be expected. When the clinical diagnosis of a malignant neoplasm of the paranasal sinuses and nasal mucosa is possible on the basis of pain and swelling of soft tissues, which may be nodular, hard or soft, the process is undoubtedly advanced and probably beyond benefit of any kind of treatment, except palliative. Roentgen evidence of bone destruction often means an advanced stage of cancer. The majority of early cancers of the nasal accessory sinuses are discovered accidentally at operations for sinusitis.

In all cases of sinusitis where there is inflammation the following symptoms are found: Persistent pain in the face or upper jaw, usually made worse by lying down. This may indicate a malignant tumor of the sinuses. A new growth limited to the nasal cavity, nasal obstruction and hemorrhage are also frequent symptoms. This nasal growth may have the appearance of nasal polyp, yet upon removal, the hemorrhage may be profuse and this is suggestive of cancer. If, after the application of usual methods of treatment, including x-ray, there is still doubt as to the possibility that a malignant tumor is present, exploration of the sinuses should be carried out, so that

a fresh frozen section of the tumor can be examined. Too often we are prone to render palliative and conservative treatment. If we wait until there is a bulging and swelling of the eye, the outcome is self-evident.

The symptoms of the new growths of the antrum depend somewhat on the location of the growth. Tumors originating in the hard palate or superior alveolus are characterized by early swelling. With invasion and destruction of the bone, the teeth will fall out, but very little pain is associated with this. Lesions originating from posterior, superior antral wall are characterized by anesthesia of the cheek wall. These patients often have pain referred to the teeth and probably will see the dentist often. New growths that have their origin in the ethmoidal region may extend into the sphenoidal sinuses, and if the optic nerve is involved, the first symptom will be a diminution of the vision. In taking the biopsy and receiving a positive report from the pathologist, it is much better to render the necessary treatment at this first operation, rather than submit the patient to a second operation, where the sinus shows considerable inflammation and swelling.

Ian G. Robin,⁵ of Guy's Hospital in London, states that there is some disadvantage in relying solely on a pathologic report, and Harmer and Cade urge that if the clinical picture indicates malignancy in spite of a negative report, the surgeon should act accordingly or else metastasis will certainly proclaim a diagnosis of hopeless malignancy.

TREATMENT

The treatment of malignancy in the region of the paranasal sinuses, will, of course, vary with the histologic nature of the disease. Those highly cellular, anaplastic, embryonic types of tumors that tend to metastasize so quickly, as a rule, respond very poorly to surgical operations. So it is in these types of tumor that we rely upon the x-ray and radium therapy.

If the age and physical condition of the patient permits, he should be instructed to return regularly for follow-up treatment

and for observation, so that improvement or recurrence of the malignancy could be checked. It must not be forgotten that patients with a very high malignant type of tumor which is primary and involving the antrum, have a better chance of recovery than those that have tumor of same size, but of a lower grade of malignancy. The reason for this is that the highly malignant type of tumor can be destroyed by diffuse irradiation, while the tumor of lower grade malignancy must have every particle of tumor removed by surgical diathermy and this is often almost impossible to accomplish. Patients with extensive lesions of the squamous cell epithelioma and those who have sarcoma are subjected to treatment.

There are really only two methods of treatment for malignancy of the sinuses that have proved of any value, and these are surgery and irradiation, or a combination of both. In the tumors that show anaplastic new growths, x-ray or radium can be used alone. In the malignant cases where there is an infection and drainage, surgery is indicated, combined with radium. In patients in whom a surgical operation is indicated and is done, the best method of administering an anesthesia must be chosen. In patients in whom the growth is confined only to the maxillary antrum, and a Caldwell-Luc operation is indicated for the removal of the growth, as well as an approach for the application of radium, the anesthetic I use is the nerve blockage. In instances where there is involvement of several sinuses, also some bone destruction, and where the duration of the procedure may require considerable time, intratracheal gas anesthesia is employed. But, when gas or ether is used do not use diathermy or a cautery, but the knife. When the cautery is used, the anesthesia of choice is sodium pentothal, which is a very satisfactory anesthesia when used in proper hands.

Of the several operations devised for either that is, the removal of the entire tumor tissue, or for making an approach for the application of the radium, adequate exposure should be obtained. According

to New, in the treatment of these tumors, the objective must be complete eradication of the tumor at one time, regardless of the deformity that follows. The loss of an eye, or the perforation of the cheek is of minor importance in cases of this kind, for plastic surgery can be resorted to later.

The operation for nasal lesions that gives the most adequate exposure and that affords complete removal of the new growth is the one devised by Schall,⁶ of Boston. This is the operation that I have used in removing the malignant growths. The incision starts opposite the inner canthus and extends down the lateral wall of the nose and around the ala, and is kept as near the fold as possible. The periosteum and soft parts are lifted back from the bone, and the nasal cavity is entered by removing part of the superior maxillary bone and the lateral nasal bone. By extending the incision upwards and removing the lacrimal bone, the frontal sinus can be brought into sight. After removing the new growths, the cavity is lined with vaseline gauze, and the radium is then transplanted. The pack and radium are later removed through the nasal cavity.

The surgical approach to the tumor in the antrum requires still more radical surgery. The incision used by Moure is one I use, which is very similar to the Schall operation, only this incision extends from the ala to the mid-line of the upper lip. It then goes through the tissues, dividing the upper lip, and then through the buccal mucous membrane from the nasal spine to the last molar. The entire soft tissue of the cheek is turned back, exposing the superior maxilla, permitting an inspection of the maxilla, and, if involved, the maxilla can then readily be removed. As I have stated above, bleeding is less if the cautery is used for coagulation of the blood. Some advise ligation of the carotid artery, but I have not found it necessary. The cavity is cleaned out by the coagulation current. Radium is placed in the cavity and removed through the buccal incision. The musculature of the lip is sutured by buried catgut ligatures and the skin is closed by dermal sutures. There will be some odor, but this

can be controlled by the use of permanganate sprays 1-5000.

The postoperative care of these patients is very important. The cavity must be kept clean and the patient fed by tube for a few days.

RADIATION THERAPY

The type of radiation therapy advisable in malignancy of the nasopharynx and nasal accessory sinuses varies widely with the location and extent of the pathology and with the radiosensitivity of the tumor. The decision as to whether a cure will be attempted or palliation alone will be used must be determined before treatment is begun. Individualization of treatment is very important for few patients can be treated alike. If best end results are to be obtained, close cooperation between the surgeon and radiotherapist is of paramount importance.

Some anaplastic tumors, lympho-epithelioma and Schneiderian carcinomas, are very radiosensitive and are successfully treated by x-radiation alone. They metastasize early, and the lymph drainage areas should be treated as intensively as the primary lesion, which is often very difficult to locate.

The slower growing carcinomas of the maxillary sinus are usually best treated by a preoperative course of x-ray therapy. Small multiple portals of entry are employed to utilize the crossfire radiation technic and the dosage is fractionated and treatment continued to skin tolerance. Two thousand to 2500 r/air total dosage per port can usually be safely employed. This treatment usually shrinks the tumor mass, and after a period of two or three weeks surgery should be done to facilitate drainage, remove the tumor and all bony extension and make possible the application of intracavity radium packed in place with gauze at the time of operation or applied later embedded in Stent or a Columbia paste mold. Filtration should be 1 mm. of platinum and the dosage should be 3000 to 4000 milligram hours.

Some radiotherapists prefer radon seed implantation at the time of operation and good results are reported, following this

type of therapy. My experience, however, has been limited to the use of platinum capsules since radon is not yet available at the Tumor Clinic.

A combination of surgery and radiation therapy in these cases gives much better end results than either surgery or radiation alone. It is very important that the surgical procedure be radical and the success or failure depends largely upon whether all invaded bone is widely excised, disregarding the importance of the bony structure. Radiation should not be expected to kill epithelial cancer cells which have invaded the bone.

RESULTS

In recent years the death rate has been markedly reduced due chiefly to operative procedures, and more patients are alive without recurrence in five, ten and fifteen years. At the Mayo Clinic, Gordon New reports recent examinations show that patients have been well for fifteen years after they had been treated for malignancy of the paranasal sinuses. In a recent study of 925 cases of malignancy of the antrum and upper jaw with operation performed previous to 1929, 236 persons were traced, of which 127, or 53 per cent were living without recurrence five years later.

Ohngren⁷ found that 35 per cent of patients live for more than five years without recurrence.

Harmer⁸ is consistent in reporting prognosis only after consideration of the pathology of the growth, and reports as follows: Nearly a third of the carcinoma cases survived two years; half of those with sarcoma live about one year; half of those with endothelioma live for three years.

CONCLUSION

I believe that the consensus is that the outlook is grave in all cases of malignancy of the sinuses even when seen early, but there is some hope of cure. The late cases are almost always hopeless. In the early cases we must have courage and give large radiation doses combined with the surgical procedure where removal, approach, and drainage are indicated, and I am of the opinion that to get best results there must

be close cooperation between the surgeon and radiologist.

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DISCUSSION

Dr. L. W. Gorton (Shreveport): The progress of this so-called investigational treatment has increased rapidly in the last decade. A survey of the literature reveals the hard task the radiologist and surgeon have in combating this disease. Being closed cavities, they are almost inaccessible to radiation without injury to the soft parts.

I think a point to be emphasized is an attempt to notice early symptoms, such as unexplained pains, the so-called neuralgias, the toothaches and the bulging of the lateral nasal wall in the nasal chambers, the hemorrhages and the other symptoms that would bespeak a tumor. It is a hard task to differentiate an inflammatory process from a tumor. In most cases where we cannot prove that the lesion is non-malignant and suspect that it might be, although it is a rather radical procedure, it is sometimes justifiable to do a biopsy for certain diagnosis.

The thing that impresses me most is the cooperation between the surgeon and the radiotherapist, in that formerly there was some argument between the surgeon and the man who gives the x-ray and radium treatment, where the surgeon provides the necessary portals and drainage and cooperates with the radiologist who can combat the disease more thoroughly with radium and x-ray.

Dr. R. W. Cooper (Shreveport): I agree with Dr. Atkins that in the treatment of malignant tumors of the paranasal sinuses the surgeon and radiologist must cooperate throughout the entire treatment and follow-up examinations if the patient is to receive the best end result.

My remarks will be confined to a discussion of the type of radiation therapy usually employed at the Tumor Clinic of the Shreveport Charity Hospital in the treatment of this disease. This diagram shows the position of the portals of entry in malignancy of the antrum. An anterior 5 or 7 cm. portal and a lateral 7 cm. portal. The x-ray factors used are 200 K. V. P., 70 cm. S. T. D., 0.5 mm. Cu 1 Al

filter. Total preoperative dosage 2000 to 2400 r/air per portal applied in 20 days.

Following a 2-3 weeks' rest period, one of the operative procedures described by Dr. Atkins is done. If the Caldwell-Luc operation is selected, 4-6 1 mm. platinum capsules, each containing 10 milligrams of radium, are packed into the antrum after removal of as much of the tumor as is possible. The total radium dosage is from 3000 to 4000 mgr. hours.

If a more radical surgical procedure is done another rest period is often permitted for primary healing to occur before the application of radium capsules packed in with gauze or applied embedded in a Columbia paste mold through the window in the hard palate.

In intensive radium treatment it is important to place the radium capsules well apart to assure a more homogeneous radiation. We always take x-ray pictures after application to be sure that the radium capsules are well placed.

In the following diagrams other methods of applying radium needles and capsules to the nasal passages and sinuses are shown.

In the less anaplastic malignant tumors of the nasal accessory sinuses the use of both radical surgery and radiation therapy will produce much better results than either method used alone.

Dr. Wallace Brown (Shreveport): Dr. Atkins has discussed the surgical treatment along with postoperative care and radiation therapy. I would like to mention a few points that may be emphasized.

Surgery may be used radically or simply to provide an opening for application of radium, or to remove bulky growths which may then be more readily treated by radiation. Malignancy discovered during sinus operations usually falls into the group of surgical procedures adapted to removing the bulk of the tumor and to providing an opening for the application of radium. The endotherm is extensively used when such procedures are followed. Deep coagulation usually results in extensive bony slough.

In the more radical treatment of paranasal sinus malignancy, an attempt is made to excise widely all diseased tissue. Since most radical surgical procedures are directed at the antrum, because of the frequency of malignancy in this area, particular emphasis should be placed on the surgical removal of the upper jaw. In all patients subjected to such a procedure, a definite histologic diagnosis should be made. X-ray studies should be carefully evaluated before surgery is attempted, since inadequate surgery is followed by prompt recurrence.

The patient's general condition is of major importance as these elderly patients tolerate surgery poorly. If it is possible to promise the patient a satisfactory period free from recurrence, or if this is hoped for, after consideration of the x-ray, extent of disease, and the histologic diagnosis,

surgery should be attempted and should be quite radical. While on the other hand, we should not subject an elderly individual to a procedure which, after careful evaluation of the case, would appear to leave the patient with a poorly functioning mouth and a slim chance for recovery.

Finally, it may be said that surgery definitely has a place in the treatment of paranasal sinus malignancy, and in each case considered for the possible use of surgery, the patient should be given the benefit of the doubt.

Dr. W. L. Atkins (In closing): I am rather interested in these cancer conditions. We do not see many in private practice, but do see many of them in the institutions, such as the Tumor Clinics.

I just want to emphasize again the need for cooperation between the radiologist and the surgeon and to say, do not give up hope, but do something for these patients.

Let me stress the importance of making a large approach for the application of radium and drainage of the tumor area. In removing the tumor mass, or making a sufficiently large approach, do not worry about the cosmetic appearance, or the loss of some organ to the patient. The main object is to remove the tumor tissue and then later do the plastic surgery.

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CHOLESTEATOMA AND MIDDLE EAR INFECTIONS*

HAROLD LESLIE KEARNEY, M. D.
NEW ORLEANS

In otology, the term *cholesteatoma* refers to globular masses surrounded by a thin shell of epidermis and connective tissue. The masses themselves are composed of accumulated horny and desquamated epidermis and cholesterol crystals. The presence of cholesterol is purely accidental and owes its existence to the decomposition of organic matter in an atmosphere lacking in oxygen.⁴

TYPES OF CHOLESTEATOMA

According to Wittmaack's⁹ classification, there are three types of *cholesteatoma*, true *cholesteatoma*, primary or "genuine" *cholesteatoma*, and secondary *cholesteatoma*.

True *cholesteatoma* is an extremely rare tumor in the cranial bones, the result probably of an embryonal rest. Teed, working from the embryologic standpoint, concludes

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that true cholesteatoma of the middle ear and mastoid may result from the anomalous functioning of normally placed epidermal cells.⁷

In primary or "genuine" cholesteatoma, there is an ingrowth of epithelium from Shrapnell's membrane without a pre-existing perforation or otitis media. The starting point is a retraction of Shrapnell's membrane, usually just above and just anterior or posterior to the short process of the malleus.⁶ This is the result of negative pressure either in the attic alone as a result of the attic being blocked off by persistent hyperplastic sub-epithelial connective tissue in the epitympanic recess, or by negative pressure in the entire tympanic cavity as the result of prolonged eustachian tube block. This results in the invagination of a portion of Shrapnell's membrane to form eventually a flask-like cavity with a bottle neck toward the external auditory meatus impeding escape of desquamated epithelial cells cast off in the interior of the sac. In these cases, since the pathology is limited to the attic, the modified radical mastoid operation developed by Bondy in 1910 and later by Blackwell in 1912, is applicable. The modified radical mastoid operation is designed particularly to conserve hearing. As pointed out by Bourgeois and Sourdille¹ in France during the first World War, the result of the operation is the healing of the suppuration with conservation of function, a condition essential for guarding the social and military value of the patient.

Secondary cholesteatoma is the invasion of stratified squamous epithelium from the external auditory canal into the spaces of the middle ear through a comparatively large marginal perforation, the result usually of necrotic otitis media arising from scarlet fever or measles. Should surgical intervention become necessary, the classic radical mastoidectomy is indicated in cases of secondary cholesteatoma.

One other type of pseudo-cholesteatoma is that confined to the external auditory meatus. This was first described in 1850 by Toynbee⁸ under the title of "Specimen of Molluscum Contagiosum Developed in the

External Auditory Meatus." The condition is not molluscum contagiosum, but a result of a chronic desquamative process of the cutaneous lining of the external auditory canal.³ These dense impacted plugs of lamellated epithelium are not uncommon. They continue to enlarge from the casting off of layer after layer of squamous epithelium from the cutaneous lining of the canal and the eventual pressure from these masses may often cause enlargement of the bony external auditory meatus from atrophy of the bony structures. Simple removal of the masses and occasional observation are the usual methods of treatment.

The existence of a cholesteatoma in the middle ear and mastoid antrum produces an interference with the natural drainage of these structures. Continued enlargement of the cholesteatoma by growth may result in pressure atrophy of bony structures which may result in erosions into the cranial cavity or into the membranous labyrinth. Paralysis of the seventh nerve may result from pressure. One of the accepted methods of sabotage of a steamship with a cargo of soy beans is to let sea water into the hold. The beans expand from the absorption of water, and pressure on the hull of the ship produces leaking which puts the ship out of commission or sinks it. Cholesteatoma also absorb water and swell. Consequently the entrance of water or aqueous solutions into the ear in these conditions is undesirable.

ETIOLOGY

Day,² in discussing factors in the formation of cholesteatoma concludes that moisture is the primary and major factor in the development of cholesteatoma. Only anhydrous solutions should be employed in the presence of cholesteatoma. Conservative treatment should be tried only in the absence of symptoms or signs of extension beyond the confines of the middle ear and mastoid. Cures can be obtained only if there is complete epidermization of the walls of the cavity. The presence of moisture will prevent cures and cause recurrences. This is especially true if granulations or an open eustachian tube are present. Conservative treatment is rarely successful with young children because of

tubal secretions. Periodic examinations are important after the ear has become dry. The early recognition and proper treatment of chronic otitic suppuration with cholesteatoma should obviate the need of radical surgery and prevent the serious complications which so commonly occur at present.

TREATMENT

Rejto⁵ calls attention to the danger of aqueous therapy for cholesteatoma, and points out that this treatment not only fails to effect a cure, but even promotes further development of the disease and may cause severe destruction and complications. He corroborates Day's experience in obtaining favorable results by syringing with 95 per cent alcohol and with ether. Latterly, Rejto has been syringing the attic alternately with absolute alcohol and with carbon tetrachloride. He favors the latter substance not only because it dissolves the cholesterol crystals, but also their esters. Because in these treatments, carbon tetrachloride is absorbed only in minute quantities, he feels that its toxic influence is of no importance, and no harmful effects have been seen in the few patients in whom the drug made its way into the pharynx by way of the eustachian tube.

CASE REPORT

Mr. A. B., aged 34, was first seen August 11, 1938. His chief symptom was headache. Examination at that time showed a chronic purulent middle ear infection on the left side. There was a small antero-superior perforation of the left drum with a small protruding polypus and underlying cholesteatoma. The right ear showed a large postero-superior perforation of the drum and a dry cholesteatoma. There was almost immediate cessation of headache after removal of as much cholesteatomatous material as could be removed through the perforations of the drums. He was kept under treatment for 15 months and at the end of this period, he felt so well that he discontinued treatment. In January, 1941 he developed marked vertigo with a tendency to fall to the right. Examination at this time showed a cholesteatomatous mass occluding the perforation in the left drum. There was a positive fistula test as evidenced by vertigo produced by manipulation of the cholesteatoma. Neurologic examination, including spinal fluid, was negative. Blood and spinal Wassermann tests were negative. General physical examination was negative except for arthritis in the right hip. On January 10, 1941, left

radical mastoidectomy was done, using the endaural approach. Operative details from his hospital record are as follows:

Endaural exposure of the mastoid cortex was done. This mastoid antrum was entered with a serrated burr driven through Macewen's triangle. The opening was enlarged and the cortex removed with round cutting burrs. The external bony wall of the epitympanic space was removed with curettes and the posterior bony wall of the external auditory canal was removed down to the fallopian canal (which was not opened) with curettes. The bridge of the annulus was removed with small rongeur forceps. The remains of the ear drum were removed. These procedures had uncovered a large cholesteatomatous mass filling the middle ear space, the epitympanic space, the aditus ad antrum, and the mastoid antrum. This mass was lifted out of its bony cavity intact and measured approximately one inch in length by about one-half inch in its greatest diameter. On removing

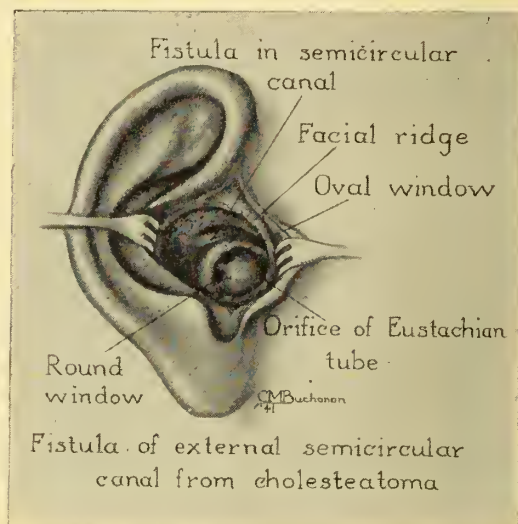


FIGURE 1

the mass, a fistula was disclosed on the convex surface of the external semi-circular canal near its ampullar end. The fistula was not disturbed. The cholesteatoma had destroyed the processus cochleariformis together with much of the tensor tympani muscle. The tegmen was intact throughout, careful search with a probe revealing no opening into the cranial cavity. The remnants of the ossicles had been lifted out imbedded in the cholesteatomatous mass. The orifice of the eustachian tube was curetted, granulations removed from the middle ear, and the hypotympanic space obliterated by lowering the bony floor of the external bony meatus. Mastoid dressing was applied.

Audiogram done March 17, 1941, showed improvement in hearing in the operated ear as compared with audiogram done four days prior to operation.

At his last visit in April 1941, the middle ear and mastoid were dry and completely epithelialized.

SUMMARY

The types, etiology and treatment of cholesteatoma have been discussed, plus the presentation of a case report.

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CEREBROSPINAL RHINORRHEA*

PHANOR L. PEROT, M. D.
MONROE

The spontaneous escape of cerebrospinal fluid from the nose has been described in severe head and nose injuries, in complications of intracranial surgery, nasal infections, congenital anomalies, meningitides, and brain tumors. Brain tumors apparently are the most frequent cause of cerebrospinal rhinorrhea.

HISTORICAL DATA

Charles Miller,¹ in 1826, described the first definite case of cerebrospinal rhinorrhea in a boy with chronic hydrocephalus. A description of a clear nasal discharge probably of cerebrospinal origin is found in the writings of both Willis,² in 1676, and Morgagni,³ in 1762. In 1877 Tillaux⁴ reported a case that was first to be verified by chemical examination of the fluid. There

was a valuable contribution by Sir St. Clair Thomson,⁵ in 1899, who recorded 21 cases and one of his own. During the next quarter century 20 more cases were reported. These were summarized by Johnson,⁶ when he recorded his case in 1926. Joseph C. Donnelly,⁹ in a review of the literature up to 1931, showed 27 more cases which brought the total number, spontaneous and traumatic, to 69, and reported two more. Fox has also reported an additional case, as well as Weil and Womack, and Shea has also added another three.

ETIOLOGY

Among the known causes of a communication between the cerebrospinal fluid system and the nasal cavity are bony defects in: (1) The walls of the frontal sinus; (2) cribriform plate of the ethmoid, or rarely (3) the sphenoid sinus.

The most exact knowledge as to the cause of spontaneous cerebrospinal rhinorrhea has been contributed by Locke,⁷ who, in 1926, searched the literature and found 14 cases in which necropsy had been performed. In 12 cases internal hydrocephalus was found. Eight of the 12 cases showed a cerebral tumor producing an obstruction to the ventricular system and found unmistakable openings connecting the floor of the anterior cranial fossae with the nasal cavity.

John Shea,⁸ has recently presented a case autopsy report of a pituitary tumor with an opening into the sphenoid sinus.

Locke showed that when colloidin masses were injected under pressure into the subarachnoid spaces of the dog, they frequently leaked from the nose. His belief was that the dura overlying the cribriform region was especially susceptible to penetration because of the tiny holes that are normally present for the exit of the olfactory nerves; furthermore, the arachnoid membrane and the subarachnoid spaces continue for a distance along these nerves.

DIAGNOSIS

The escape of the cerebrospinal fluid is confined to one side of the nose and continues without intermission both day and night, flows more freely when head is in-

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clined forward. If collected and examined, the fluid is found to be perfectly clear and transparent and free from albumin and mucin, but it is capable of reducing Fehling's solution. The fluid does not stain the handkerchief or stiffen it. Amount discharged in 24 hours varies from 50 to 1000 c.c. and shows no variation from the fluid obtained by spinal puncture. Fluorescein may be injected into the spinal canal and recovered from the nose. These characteristics suffice to distinguish cerebrospinal rhinorrhea from other types of rhinorrhea in which the fluid will be opalescent, and will contain albumin and mucin and will not contain glucose. Moreover, in hay fever and vasomotor rhinorrhea the fluid flows from both nostrils and usually during the day only.

Schwab and Green, in common with the other writers, pointed out the fact that optic neuritis is usually associated with cerebrospinal rhinorrhea.

TREATMENT

The only rational form of treatment for this condition is one directed toward the relief of the obstruction of the cerebrospinal fluid pathways. Should there be localized signs of an accessible intracranial tumor, its removal should be attempted. However, too great an operative risk should not be taken, as some patients with rhinorrhea and brain tumor have lived for many years, the cerebrospinal fluid leak acting as an effective decompression.

Wurster,¹¹ reported an unusual patient who had two submucous resections, turbinectomy, cauterization, tampons and violet ray. Noah Fox,¹² reports a case where the nose was swabbed six times with 20 per cent silver nitrate causing a fibrous band of adhesions and the flow stopped. J. R. Learmonth,¹⁰ reports operation of turning back a flap, exposing the cribriform plate and inserting iodine packs with a cure resulting.

The patient should be warned to: Avoid acute colds, blowing the nose or sneezing, nasal douches; rest in bed and isolation from any possible contact of infection.

CASE REPORT

A married woman, aged 39, was first seen on March 17, 1937, because of a persistent discharge

of watery fluid from the left nostril. Frontal headaches began six years previously and became severe with periods of convulsions and unconsciousness. There was no disturbance of vision.

In 1934 she noticed a watery discharge of fluid from the left nostril, almost a constant drip and worse when leaning forward. This was continuous day and night. She estimated the amount in 24 hours to be about a teacup full.

The examination of the nose showed a septal ridge on right side; on the left side, moisture was noted between middle turbinate and septum. With head inclined forward, a constant drip of clear watery solution from left nostril was collected. Throat presented sclerotic tonsils. Transillumination of antra and frontal sinuses was clear.

Vision 20/20 in both eyes; pupil reaction normal; slight pallor of right disk; visual fields were normal. The blood pressure was 110/70.

Pathologic report of fluid: clear; two to five cells (lymphocytes); sugar present; globulin not increased; chlorides present; Kahn test negative. The blood Kahn test was negative.

X-ray of skull: Postero-anterior and lateral films of the skull; right side of the film shows a large diffuse collection of poorly calcified material, lying in the anterior cranial fossa slightly above the level of the roof of the orbit. The postero-anterior film shows this calcified area to lie definitely on the right side. Despite the somewhat high position of the tumor, and its location to the right of the midline there is complete destruction of the dorsum sellae and the posterior clinoid processes. The roof of the sphenoid antrum is depressed to the level of the floor and the antrum completely obliterated. Diffuse, spotty rarefaction is noted in the squama of the frontal bone. Final conclusions from x-ray findings: Brain tumor, right frontal lobe.

This patient was seen by Dr. Ernest Sachs in 1937 who offered to operate if she would come to St. Louis. This she refused.

On February 12, 1941, a report and specimen of fluid was obtained. Patient still complains of headaches relieved by aspirin. Vision good. There is a constant dripping of fluid from left side day and night, which does not stiffen or stain her handkerchief. She has fainting and nervous spells, is easily fatigued, otherwise is up and goes about her house duties.

SUMMARY

A case of cerebrospinal rhinorrhea, secondary to a probable brain tumor of the right frontal lobe, is reported.

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THE EYE AND EAR IN AVIATION*

DORF BEAN, M. D.
SHREVEPORT

In this paper I shall discuss those individuals whose pleasure or occupation is flying airplanes. In other words, airplane pilots; with one exception, where brief reference will be made about unfavorable reactions to the ears of passengers in planes where too rapid change in altitude is made.

No doubt, many will ask the question why discuss the eye and ear in aviation before this state medical meeting? There are several reasons for such a paper at this time: First, quite a few of the members of this Society are authorized medical examiners of airplane pilots for the United States Department of Commerce and the Civil Aeronautics Department of Commerce and the Civil Aeronautics Authority; second, aviation is the subject of world-wide discussion at present and the younger generation is very much air-minded. I believe practically all the high school boys in this State would take up flying tomorrow if they had such an opportunity; third, this nation must, for its own safety, maintain a force of more than one hundred thousand pilots, and first line pilots at that, ready for any emergency. Young pilots

must replace the older ones yearly, for flying is truly a young man's game.

In aviation, as in no other occupation or industrial activity, perfect eye sight or normal vision is essential for the highest efficiency and safety.

Man is blessed with binocular single vision, that is, he can tell not only the direction of an object, but fairly accurately its distance by the use of both eyes pointing at the same object at the same time, like two range finders. The outside limit of vision of man is greater than half of the space in which he is placed, and his eyes can move accurately with the greatest precision to any object in any part of his field of vision, and such movements may be aided by movements of the head and body. He sees distinctly only that at which he directly looks. Peripheral vision assists him in discovering moving or other objects to which, if he wishes, he may direct his gaze. Two seeing eyes are mandatory in an airplane pilot with very few exceptions; where an old experienced pilot has lost one eye, he may be permitted to fly after the accident.

EYE EXAMINATION FOR PILOTS

The examination of an airplane pilot's eyes is the first and most important step in his or her physical examination, and is divided into several different procedures.

First, visual acuity, using eye chart at a distance of twenty feet and examining each eye separately, having other eye closed or covered with fairly large opaque card and not by the hand or some small object. The applicant must not be allowed to squint, but must keep eyes open in normal position. It is surprising how a myopic individual or nearsighted person can improve his distant vision by forceful squinting, thus giving an inaccurate visual finding. If one eye is suspected of being worse than the other, then it should be tested first.

Second step in the eye examination is depth perception. In this test the Howard-Dolman depth perception apparatus is used. It is a rectangular box-like apparatus, approximately forty inches by twelve inches and twelve inches deep, with an open top

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and sides, and has two black metal rods; one rod being stationary, the other moved by a cord at a distance of twenty feet with a plain white field as a background. The accuracy with which the pilot approximates the rods is an excellent check up on his or her ability to judge distance in landing and taking off in an airplane. However, I have in mind one experienced pilot, with over five thousand hours' flying time and sixteen years of flying, who never makes a good showing with the depth perception test. It may be he does not take much stock in such a test or does not try to do his best. Yet, this test has been proved to be an important step in the examination of flyers.

Third, the ocular muscle balance test is given to find if diplopia or hyperphoria is present, and if abduction (prism divergence base in) and adduction (prism convergence base out) esophoria and exophoria are within normal limits. These findings are very important and diplopia to any marked degree disqualifies; in fact diplopia disqualifies unless it develops in the extreme limits of the visual field. Hyperphoria of over one diopter restricts the pilot to a non-commercial flying status.

The few persons I have found with hyperphoria to any marked degree, have all given the same general history of a severe blow on the head and showed scars as evidence of the injury. One young commercial pilot fell from an automobile and suffered a serious head injury and concussion; months after his recovery he had such a marked hyperphoria that he was advised to quit flying. Another youth failed to get into the Civilian Pilot Training because of hyperphoria and the scar on frontal bone area, caused by a fall from a bale of cotton several years prior to examination; this was the only known cause of his abnormality.

Fourth, the accommodation or near vision is tested and here the young individual passes for the higher rating, but the older pilot, approximately forty-five years of age, in most cases fails to read the small test letters and has to qualify as a non-commercial pilot, the commercial pilot be-

ing the higher rating. The natural question arises as to why penalize the older person for presbyopia when reading glasses will correct this condition. The answer is simple; when the eye reaches this stage in life the reaction time of changing from near to distant vision is slowed up, and in fast airplanes of today and certainly in the combat military planes where the landing speed is high and flying speed is terrific, the presbyopic eye can not read the instruments on the nearby instrument panel and at the same time take care of the distant objects and landmarks that are flashing by. This is where split second timing is not only essential but vital, and the older individuals' eyes can not make the grade.

I have in my files the record of a man past fifty who first flew an airplane when he was over fifty years of age, and while he had a non-commercial or private pilot's license, he was considered a good pilot. However, he and a member of his family crashed and were killed when flying through a rain storm. The crash might have occurred even with the best qualified young commercial pilot at the controls, yet one can not forget that pilot failure rather than plane failure seems more likely.

Fifth, the visual fields are tested by simple finger and fixation method, unless some apparent blind spot is suspected, then the perimeter is used.

Sixth, the central color vision is tested, using Stillings or Ishihara tests, these two being pseudo-chromatic plates; these two tests are very delicate or difficult to pass if there is a slight color vision defect, and where some of the numbers are missed, the Holmgren's test (colored yarns) is used. If all colors are matched correctly a normal color vision is recorded. An airplane pilot must be able to detect colored navigation lights, airdrome lights, colored signal panels and be able to read maps printed in colors, and know shades of green and brown on the ground that indicate the kind of territory over which he or she is flying and which helps in locating an emergency landing field, should the occasion arise.

Some recent tests have been made on the ability of color defective persons to detect

hidden and camouflaged planes and other equipment from airplane observation posts. And I understand the observers with color vision defects were better able to find the camouflaged planes and other objects than those with perfectly normal color vision. If this is true, then there is very urgent need for color blind or color vision defective observers for more efficient airplane observation.

Seventh, the eyes must be of normal size, and pupillary reaction to light and accommodation must be normal. The ophthalmoscopic examination must show normal media, disk, blood vessels and retinae.

This brief and rather rapid summary of the eye requirements may seem too strict or too difficult for many applicants to pass; however, remember the qualifications above mentioned are for the commercial pilots of the highest standing, and there are modifications for the commercial grades also. Recent regulations permit the issuance of a commercial rating to pilots whose vision is 20/50 or better in each eye and whose vision is brought up to normal or 20/20 in each eye by use of correcting lenses.

REQUIREMENTS FOR OTHER FLYERS

The requirements for the non-commercial or private flyer are much less exacting. The vision of the private pilot may be twenty two hundredths (20/200) or even less, providing correcting glasses bring the vision to twenty thirty (20/30) in each eye. Then he or she can be given a private pilots license rating with the notation on the certificate that correcting lenses must be worn by holder when operating aircraft; this same notation is placed on the commercial pilots license where glasses are necessary for normal vision. Over ninety-five per cent of all applicants with poor vision that I have examined have been myopes and glasses have made these people see normally in practically every instance.

If the pilot should lose or break his or her glasses while in flight, then the chance of making a safe landing would be very much less than under normal conditions. The fact is that most planes are made with

much better protection for the pilot and many planes made now are closed models which makes the pilot wearing glasses much less likely to suffer an accident to correcting lenses while in flight. It is considered safer and better to wear metal frame correcting lenses beneath plain protective goggles instead of using specially ground goggle lenses. The fact that an individual has become accustomed to the glasses worn, their size, shape and weight makes it better and more comfortable to use regular spectacles and goggles over them.

In the muscle balance test the applicant having more than one diopter of hyperphoria can not be qualified as a commercial pilot, but hyperphoria does not disqualify for non-commercial or private grades. Color blindness is not a disqualifying factor for the private pilot.

The presence of nystagmus or strabismus, or ocular diseases or abnormalities, disqualify for all grades of airplane pilot licenses.

Some rather interesting work on intra-ocular pressure at high altitudes by Pinson and Armstrong has been done to see just what takes place under such conditions. The tests were made on rabbits' eyes and the needle was introduced into the vitreous humor and connected up with the manometer. The live animal and manometer were placed in low pressure chamber, where various rates of pressure changes up to an altitude of forty thousand feet were made. The results of these tests showed even the most extreme barometric pressure changes caused no significant increase in the intra-ocular pressure at any time.

EAR CONDITIONS

The ear, while important in aviation, as in other occupational activities, is more briefly considered.

The importance of hearing distinctly is more essential for the airplane pilot of today than in the past, because of the practically universal use of radio in the planes in use now. The ability to hear normal conversation or other noises in every day activities may be very much below normal, yet the same ear can hear by radio and ear

contact head sets practically normally in many instances. Perhaps the rather low whispered voice test required for commercial pilots is made with the knowledge of the use of head sets and radio communication.

In commercial pilots the whispered voice must be heard at a distance of eight or more feet, while the private pilot is required to hear the whispered voice three feet or more. In the civilian pilot training course the hearing must be perfect, that is the whispered voice must be heard distinctly at twenty or more feet.

Pilots are subject to two quite different types of deafness. First, deafness due to rupture of ear drum, most often caused by too rapid descent, directly due to unequal barometric pressure on either side of the tympanic membrane, and often associated with obstruction of the eustachian tube. Second, the deafness due to motor noises; this is usually temporary and lasts only a few hours after a flight. The sound proofed cabin type of planes now in use, especially the airliners, rarely causes any degree of hearing defect from motor noise.

The external ear canal must be normally open and the ear drum must be intact. Large perforations or destruction of the ear drum and chronic middle ear infection or history of radical mastoid operation disqualify for all grades of pilots. The eustachian tubes must be open and free from any serious infection, or any abnormality causing blocking of tubes.

Pain in the ears as a result of changes in altitude during aircraft flight has been one of the more common complaints of airplane pilots and passengers for some time. The equalization of pressure between the middle ear cavity and the outside atmospheric air is effected by means of the eustachian tube which extends from the tympanic cavity to the nasopharynx. The act of swallowing or yawning opens the eustachian tube and permits equalization of the air pressure in middle ear and outside.

The ability of an individual to clear the ears or equalize the pressure between

the middle ear and outside depends to a marked extent on his or her degree of freedom from pain or discomfort during changes of atmospheric pressure. These changes occur frequently and often rapidly in commercial and particularly in military airplanes.

The use of helium-oxygen mixtures for rapid and satisfactory decompression of divers has been proved and is used by many private divers and also by Navy under-sea workers. The inert nature of helium and its rapid rate of diffusion as compared to nitrogen seemed to make helium-oxygen an ideal gas for experimental purposes in painful ear symptom research.

Fifty experiments upon twenty human subjects were performed. All tests were made in a low pressure chamber. Helium, 80 per cent, and oxygen, 20 per cent, was the gas mixture used.

The results showed very slight decrease in painful ear symptoms as compared to normal air mixtures. The conclusion was reached that the use of helium-oxygen mixture was not practical and did not prevent painful ear symptoms to any marked extent.

SUMMARY

In this brief paper I have tried to avoid details and yet describe some of the more interesting eye and ear conditions and requirements as related to aviation.

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DISCUSSION

Dr. Charles A. Bahn (New Orleans): Very few in this audience have ever been aviators, are aviators, or ever will be aviators. You are, however, the medical advisers in thousands of families

whose young men want to be aviators. They will depend largely upon your advice. From a calendar, test chart, or magazine, place one or more half inch letters twenty feet from the prospective aviator; either he can or cannot call those letters with each eye separately and without glasses. If he cannot call those letters, tell him sincerely and forcibly that aviation is not for him. Obviously the letters should be on reasonably clean paper and reasonably well lighted. If the aspiring aviator cannot pass this simple test he is practically barred from becoming a commercial aviator or joining the Army Air Corps. In other words, he cannot get past first base in aviation. If that young man does not take your advice, he is sure to buy expensive, painful, and possibly fatal experience. At least, you will have done your duty.

The technical side of visual aviation tests, Dr. Bean has ably presented. For most of you they are, however, but of passing interest.

As general physicians and leaders in your community leave the technical side of aviation to technical experts. More important, do your share in preventing many young men who are unfit from trying to become aviators. Those who cannot recognize a half inch letter distinctly at twenty feet in a reasonably good light should avoid aviation. There are many things in which they may succeed, but they can only fail in aviation.

Dr. DeWitt Boaz (Shreveport): I have not had experience in handling aviation cases, in injuries following the profession and very little experience in examination for pilot licenses. Dr. Bean has had the opportunity for several years to examine these persons and I think he has covered the subject splendidly.

Dr. Dorf Bean (In closing): I think Dr. Bahn is correct in respect to the fact that most physicians have overlooked the fact that there is quite a field for pilots; not necessarily commercial pilots. There are many aviators in the United States who are not commercial operators. Many boys want to fly for the fun of the thing.

INJURIES ABOUT THE WRIST-JOINT*

G. C. BATTALORA, M. D.
NEW ORLEANS

In selecting this subject for discussion it was with no intention of covering all of the injuries but to dwell simply on certain of the injuries that are not so very well understood. The conditions that will be considered are: (1) Colles' fractures; (2) fractures of the carpal scaphoid; (3) disloca-

tions of the carpal semilunar bone; and (4) perilunar dislocations.

COLLES' FRACTURES

You may wonder why this topic, that has seemingly been so well considered in the literature, should be discussed. Those of you who treat any number of these fractures have undoubtedly found that a large percentage of the cases result in some percentage of permanent disability.

Colles' fractures are fractures of the lower inch of the radius due to a hyperextension type of injury. The mechanism of the fracture is a complicated one. When an individual falls it is instinctive to throw out his hands to break the force of the fall. At the moment of impact the hand is held in pronation, a certain amount of extension, and also in a certain amount of abduction or adduction. As the force continues, the extension of the wrist increases until the lower end of the radius breaks off. At this point the inferior radio-ulnar joint is still intact. Further increase of force may then cause derangement of this joint with an aggravation of the displacement of the lower end of the radius. As the distal radial fragment displaces backward, it may be forced around into supination. This is particularly true if the inferior radio-ulnar joint is intact. The attachment of the triangular ligament to the base of the ulnar styloid acts as a fulcrum for this movement. A further change that usually results is radial displacement of the hand. Any of these forces may preponderate, causing an aggravation of certain phases of the deformity.

Taylor and Parson give an excellent classification of Colles' fractures, as follows:

1. Fractures with the triangular ligament intact.
2. Fractures with loss of integrity of the inferior radio-ulnar joint.
 - a. With rupture of the ligament itself.
 - b. With avulsion of the ulnar styloid at its base.
 - c. With severe comminution of the lower end of the radius with the ligament remaining attached to a minor medial fragment.

*Read before the sixty-second annual meeting of the Louisiana State Medical Society, Shreveport, April 23, 1941.

In this classification it is apparent that the important fact is to ascertain the patency of the inferior radio-ulnar joint. The prognosis in the case depends to a great extent on this.

In the first group of cases the typical deformity is a backward tilt of the distal fragment or a backward tilt plus a supination twist. With the triangular ligament intact it is impossible to get a great deal of posterior displacement of the distal fragment. The displacement shown on the x-ray is not an actual posterior displacement but a twisting into supination of the distal fragment. This portion of the deformity may reduplicate itself in the plaster cast and is one of the most potent causes for poor results.

In the second group of cases the deformity is more severe. Any degree of comminution may be present with marked posterior and lateral displacement of the distal fragments. One must realize that there is also a break in the ligamentous apparatus between the distal ends of the radius and ulna, and if accurate reduction is not obtained, healing will occur with some derangement of this joint.

In the first group of cases manipulation is quite simple, since there is a fulcrum to lever the lower radial fragment into position. In simple posterior angulation, traction plus direct forward pressure over the distal fragment will produce reduction. Where there is a supination twist, the forearm and hand should be rotated into strong pronation, while traction is applied to the hand and the distal fragment forced into position by forward pressure, plus ulnar deviation of the hand. In the first mentioned cases the cast or splints need extend no farther than to just below the elbow. In the latter cases the support must need extend to the middle of the arm with the elbow held at a right angle. The forearm is held in strong pronation, and the hand is held in ulnar deviation with a moderate degree of flexion of the wrist. This cast is allowed to remain on for three weeks and the position then changed to a more neutral one. The usual period of fixation is about six weeks.

In the severe type of Colles' fracture the reduction is more difficult. It must be attempted in two phases. Strong traction is applied to the hand. The first phase of the reduction will then consist in correcting the posterior displacement. This is done by direct force applied to the back of the distal fragment, pushing it forward. It is impossible to overcorrect this element of the deformity, and strong pressure must be used. The second phase is then to correct the radial deviation or displacement. Flexion of the wrist is continued, the forearm is rotated into pronation, and the hand levered toward the ulnar side. Strong lateral pressure is then applied to the distal fragment, while counter-pressure is applied to the proximal one. A well molded cast is applied, holding the wrist in strong flexion and ulnar deviation with the forearm pronated and the elbow at a right angle. This cast is changed in a period of about ten days and the flexion of the wrist is relieved, but the ulnar deviation should be maintained throughout the period of fixation. The period of immobilization varies from six to eight weeks.

Several points should be brought out that are frequently neglected during the period of immobilization. First, the cast should extend distally no farther than the metacarpophalangeal joints of the fingers. This point corresponds to the distal palmar crease. If these joints are covered, motion will be impaired. As soon as the patient reacts from the anesthetic he should begin motion of the fingers. This should be carried out in a slow and forceful manner and not by the twiddling of the fingers that most patients consider exercising them.

FRACTURES OF THE SCAPHOID

In all wrist injuries that present tenderness over the radial side of the joint, fracture of the scaphoid bone should be suspected. This is particularly true if the tenderness is localized over the anatomic snuffbox space. The injury may not be considered severe but if it is a fracture of the scaphoid and it goes undiagnosed, a permanent impairment of the function of the wrist joint may result.

The diagnosis can only be definitely made by the x-ray. At times this method may leave one in doubt. A patient may have a fracture line so indistinct as to be hardly distinguishable from the bony trabeculae. If any doubt exists it is far better to treat the patient as for a fracture and then repeat the x-ray examination at an interval of two weeks. At this time the indefinite crack will now have become very distinct due to calcium absorption along the fracture line.

An x-ray examination made in an antero-posterior and lateral plane will frequently miss these lesions. An oblique view of the wrist is essential. This fracture is not infrequently associated with Colles' fracture. The oblique view brings out the full length shadow of the bone. It is always desirable to take views of both hands for comparison.

Three sites of fracture of the scaphoid are seen—through the tubercle, the wrist, and the proximal pole. Fractures through the waist are the most common and the ones that give most trouble. In these fractures the blood supply of the proximal fragment is often inadequate and aseptic necrosis of this fragment may occur. Any motion at the site of fracture will further impair this blood supply.

There is usually very little displacement in these fractures and reduction can be obtained by simply putting the hand in radial deviation, plus slight extension. A circular plaster cast, well molded, should be applied from the distal palmar crease to just below the elbow joint, and should also include the proximal phalanx of the abducted thumb. This type of splint should be allowed to remain on until there is x-ray evidence of firm union. It is impossible to prognosticate at the beginning how long this will take; therefore it is unwise to tell the patient how long he will have to be kept in a plaster cast. Some patients' bones will unite within six weeks, while some are still not united at six months. Occasionally it may require one year for complete consolidation.

If a patient has received adequate fixation for six months and there is still no attempt at repair, operative intervention

should be considered. The ideal method is to drill across the fracture site and then insert a small autogenous bone peg. This method is superior to simple drilling.

In patients presenting evidence of aseptic necrosis, the drilling operation may be tried, or, as advocated by Watson-Jones, the necrotic fragments should be removed. The danger from this condition is in the development of traumatic arthritis of the wrist-joint. When this occurs, no treatment is satisfactory except fusion of the wrist-joint.

DISLOCATIONS OF THE CARPAL SEMILUNAR BONE

Anterior dislocation of the semilunar bone results from falls on the outstretched hand. As the hand is forced backwards into hyperextension the capitate approximates the posterior edge of the radius, the posterior ligament of the joint is torn, and the bone is squeezed forward. As the semilunar is displaced forward it rotates so that its distal surface presents anteriorly. The bone then comes to lie directly behind the flexor tendons and may press on the median nerve. There is abnormal fullness in the front of the wrist and flexion is markedly limited.

The antero-posterior x-ray view shows the bone as triangular in shape in contrast to the normal quadrilateral shape. The lateral view clearly demonstrates the dislocation.

Closed reduction of the dislocation should be practiced. Watson-Jones has demonstrated that the dislocation can be reduced up to one week following injury. Reduction is accomplished by making strong traction on the hand with the wrist in extension. This opens the space between the capitate and the radius. While pressure is made over the semilunar anteriorly with the thumb, and maintaining traction, the hand is brought forward into flexion, causing the displaced bone to slip backwards into position. The hand and forearm are put up in a cast with the wrist in slight flexion for one week. This cast is then changed and the wrist placed in a neutral position for two weeks longer. The average disability period is about six weeks. Excision of the bone should be reserved only for old unreduced cases.

PERILUNAR DISLOCATIONS OF THE CARPUS

This condition is often mistaken in diagnosis. It is caused by a fall on the outstretched hand. As the hand goes into extension, the capitate slips behind the semilunar, carrying with it the bones of the distal row of the carpus and the other bones of the proximal row. The dislocation may not be a simple one, but may involve fracture of one or more of the proximal carpal bones. The most common type of the injury is a trans-scaphoid perilunar dislocation.

The deformity is similar to the silver fork deformity, but if examined closely it is found to be quite a bit distal to the usual site of deformity in a Colles' fracture. There is tenderness across the wrist, more especially on the radial side. Motion of the wrist is painful and swelling occurs early.

The antero-posterior x-ray may be very hard to interpret, owing to the overlapping of the capitate and semilunar. The lateral view, however, is quite characteristic. The semilunar is found to articulate normally with the radius but the capitate is found to be dislocated behind the semilunar bone. I have found this condition to be diagnosed as a dislocation of the semilunar bone, where in fact the semilunar is the only bone in the hand that is not displaced.

Treatment is quite simple. Prolonged longitudinal traction on the hand will open up enough space between the dislocated bones so that forward pressure over the capitate, plus support over the anterior surface of the semilunar will result in reduction. One of my patients was reduced in this manner one week after injury.

Following reduction a splint should be applied, holding the wrist in flexion for about one week. This is then changed, with the wrist being put in a more neutral position, for two weeks. If there is any associated fracture, such as fracture of the scaphoid, the patient should then be treated for this fracture.

SUMMARY

In the time allotted for this presentation it is realized that much valuable data have

been omitted, but the matter covered presents most of the newer concepts of the subject. In the handling of any of the injuries about the wrist joint the important factors are: (1) Careful diagnosis; (2) early accurate reduction; (3) adequate immobilization, and (4) proper mobilization of the exposed joints during the period of fixation.

DISCUSSION

Dr. A. Scott Hamilton (Monroe): For several years a controversy raged as to the best position for immobilization of the wrist following Colles' fracture. With the exception of the Smith variant of this type of fracture, it is generally conceded at the present that the Cotton-Loder position will, if used judiciously, yield the best functional end result. By that I do not mean to imply that the use of this position automatically guarantees restitution of pretraumatic mobility. The position does, however, form the primary basis of therapy. As has been recently emphasized by Taylor and Parsons, the Cotton-Loder position restores anatomic integrity in that it permits reapproximation of the discus articularis, it locks the head of the ulna under the hamate, forcing it into the normal dorsal position, it forces the radially displaced distal radial fragment ulnarward, and, finally it serves to approximate firmly the lower radius and ulna.

The controversy concerning position of immobilization in fractures of the carpal navicular has largely been settled. Kellog Speed (1925), Böhler (1929), Destot (1926), Berlin (1929) and Soto-Hall (1928) have described positions claimed to give maximum healing. The latter two have stood the test of time and are now generally used. These positions are wrist extension with radial deviation, the latter being particularly emphasized by Soto-Hall. Non-union follows this type of fracture frequently enough that every attempt should be made to secure the maximum of reduction in each case and fixation should be maintained until definite evidence of restoration of bony continuity is present in the x-ray film.

Dr. H. Theodore Simon (New Orleans: When anyone discusses carpal-lunate dislocations, I am interested. It is surprising when checking over compensation cases to find that because of lack of motion, diagnosis of arthritis in the wrist-joint is frequently made, when the true condition is a dislocation of the lunate undiagnosed because of lack of proper x-rays.

SODIUM PERBORATE THERAPY IN *TRICHOMONAS VAGINALIS* VAGINITIS*

FURTHER OBSERVATIONS

EARL CONWAY SMITH, M. D.†
NEW ORLEANS

In 1939 I presented before the Orleans Parish Medical Society a plan of treatment of *Trichomonas vaginalis* vaginitis by sodium perborate, and reported its successful use in 14 patients.¹ At this time I am describing the same plan, with some slight modifications of the original method, and am adding to the 14 successful cases already on record 22 others, thus bringing to 36 the number of patients whom I have personally treated by this means.

DIAGNOSIS

The diagnosis of vaginal trichomoniasis can be made definitely only by the use of the microscope. A drop of the vaginal discharge is secured from the posterior vaginal fornix by the use of a sterile pipette or platinum loop. The material is placed on a glass slide, diluted with warm tap water or warm saline solution, covered with a cover glass, and examined immediately under the low and high power lens. If trichomoniasis is present, actively motile trichomonads are always demonstrated at once in great numbers.

Although the diagnosis cannot be made on clinical symptoms and signs alone, without microscopic confirmation, acute *Trichomonas vaginalis* vaginitis should be suspected whenever the patient complains of or examination reveals: Leukorrhea, which is always profuse or malodorous, which is creamy or greenish-yellow in color, and which may contain many air bubbles; pruritus vulvae; hyperemia and tenderness of the vaginal mucous membrane, with typical small petechial hemorrhages, which are more marked on or around the cervix; va-

ginal pain, especially during and after intercourse; scalds or burns on the vulva and the upper inner aspect of the thighs.

Although profuse leukorrhea is the only symptom of chronic trichomonal infection which I have myself observed, other signs and symptoms have been reported, of which pruritus vulvae is the most common.

It is scarcely necessary to add that before treatment of the trichomoniasis is undertaken, other foci of infection which may be present in the bladder, cervix, Skene's or Bartholin's glands, or the rectum, must be identified and treated. Such conditions as monilia, gonorrhea, kraurosis vulvae, and senile vaginitis and other menopausal conditions may simulate or co-exist with trichomonal infection and must be treated according to the indications.

PLAN OF TREATMENT

The rationale of treatment is the use of a powerful oxidizing agent, sodium perborate, in an acid vaginal medium. The chemical reaction releases free nascent oxygen, which is destructive to the flagellate protozoan trichomonad.

Treatment is carried out as follows:

1. After the diagnosis has been established and other conditions have been ruled out, the vaginal secretions are tested with litmus paper. The use of nitrazene paper is a simple and fairly accurate method of determining the pH of the secretions. A pH of 6.0, which is the usual average in trichomoniasis, is sufficient to decompose the sodium perborate.

The vaginal secretion is normally alkaline before puberty and after the climacteric, but the test should be carried out in all cases, as treatment is not effective except in an acid medium. If the reaction is not acid, a douche of lactic acid solution (U.S.P., dr. 1 to one quart of warm water) is taken before treatment is begun.

2. One capsule (No. 12 veterinary) containing 10 gr. of sodium perborate (Merck or Squibb) is inserted deep into the posterior vaginal fornix, either an instrument or the rubber-gloved fingers being used. Lubrication of the capsule with KY jelly facilitates its entrance. The vagina is not swabbed out before the medication is insert-

*Read before the sixty-second annual meeting of the Louisiana State Medical Society, Shreveport, April 23, 1941.

†From the Department of Obstetrics and Gynecology of the School of Medicine of Louisiana State University.

ed, as the secretions aid in dissolving the capsule.

3. The patient is instructed to carry out the same procedure for 15 consecutive days. She is also instructed to take a vaginal douche of sodium perborate solution (15 grams to one quart of luke-warm water) at bedtime each night. The douche is taken slowly, in the reclining position.

The patient is also instructed: To use shower baths in preference to tub baths; to sterilize douche apparatus and bath towels; to wash the toilet seat daily; to cleanse the parts, after bowel movements, in the direction of the sacrum and away from the vagina; to use no drugs or douches except as directed. She is warned of the risk of mouth-to-vagina infection, and is given instruction in the proper care of her hands. She is, finally, advised to refrain from intercourse during the period of active treatment, and for 10 weeks thereafter, if possible.

4. If the vaginal reaction was originally acid, a daily douche of sodium perborate solution is continued for 75 days. If the reaction was originally alkaline, a daily douche of lactic acid (or vinegar) is taken daily for the same period of time.

The chemical reaction following treatment results in an extremely alkaline vaginal medium, with a pH of ± 10 , which, however, returns to normal within 48 hours after sodium perborate therapy is discontinued.

5. Vaginal smears are examined frequently during the period of active treatment, and are almost without exception negative by the second day. Additional smears are examined at the conclusion of the next three menstrual periods; if all are negative, the patient can safely be discharged as cured.

6. The husband is advised to submit to a genito-urinary survey, to rule out infection and prevent the occasional case of re-infection.

RESULTS

The 14 cases originally reported as successfully treated by sodium perborate included 12 non-surgical gynecologic cases,

one surgical case treated two months after operation, and one obstetric case treated two months after delivery. The 22 cases now added to this number include 18 non-surgical gynecologic cases, three cases treated during pregnancy, and one surgical case treated three weeks after cauterization of the cervix.

The results of treatment were satisfactory in all cases. Improvement in both symptomatology and vaginal discharge usually occurred within 24 hours. There were no recurrences, and the single instance of re-infection was traced to the husband, whose prostate gland was found to be infected.

One of the many advantages of this plan of treatment is its very low cost. The 15 capsules of sodium perborate and the amount used in bulk for the douches (approximately 8 oz.) make the total cost of the medication not more than two dollars per patient.

SUMMARY AND CONCLUSIONS

1. To the 14 cases of *Trichomonas vaginalis* vaginitis successfully treated by sodium perborate and already put on record, 22 new cases, all of which were also successfully treated, are now added.

2. It has been found that the substitution of smaller doses of sodium perborate (10 gr. instead of the 15 gr. originally employed) does not alter the effectiveness of the therapy and eliminates the slight risk of chemical burns, which occasionally occur when larger doses are used.

3. The method is effective, safe, simple, prompt, and economical, and seems to have solved the problem of therapy in *Trichomonas vaginalis* vaginitis.

REFERENCES

1. Smith, E. C.: The treatment of *Trichomonas vaginalis* vaginitis with sodium perborate. A preliminary report of 14 cases, New Orleans M. & S. J., 92:510, 1940.

DISCUSSION

Dr. E. L. King (New Orleans): I have been using this treatment since Dr. Smith first brought it to our attention, and have found it extremely satisfactory.

I want to re-emphasize a point made about diagnosis, and that is not to lubricate the speculum; also in taking the secretion, use a metal applicator or pipette. I have been told that the

ordinary wooden applicator is not satisfactory because of the possibility of the tannin causing death of the organism. The diagnosis has to be made on the motility of the organism on the wet slide, using saline or tap water. I have been using saline and the ordinary applicator to transfer the material to the slide.

One thing about this. The veterinary capsule is not always easy to get, particularly in the city where there are few veterinarians and few horses. I have a druggist send off to the manufacturer to get the capsules since I started using them.

I have used this treatment quite a few times in pregnant women, and, of course, in non-pregnant as well, and I find that the infection clears up nicely in pregnant women. Goodall stated that he had never been able to cure *Trichomonas vaginalis* in pregnancy, but I find by the use of sodium perborate the infection can be cleared up very well, and it is surprising at times how rapidly the organisms disappear. In four to five days, or a week, practically, it is impossible to find them. The patient is not cured at that time, but examination does not disclose the organism. I regard it as a perfectly simple method of treatment, and certainly, it seems to be most successful so far.

Dr. E. L. Zander (New Orleans): I heard the previous paper Dr. Smith gave and over at Charity Hospital we have a routine system of examining these patients when they come in. Each

patient has a routine slide run for trichomonas, and on confirmation they are treated. We find that some of these patients react more readily to some drugs than to others. Those with an alkaline vaginal reaction respond to treatment acid in character, and those with an acid reaction respond to treatment alkaline in character.

I have used Dr. Smith's treatment and the results have been excellent, and I think this follow-up series of cases certainly establishes the worth of this simple method that is not very expensive, and certainly, is very efficient.

Dr. Earl Conway Smith (In closing): In many of the popular treatments that have been outlined, the authors will direct you to use various ways of cleansing the vagina from washing it thoroughly to using mops and drying it out. But in this plan, the secretions should be left alone for a definite purpose, that is, to aid in the dissolving of the capsule, and secondly, relieve the patient of the discomfort of disturbing those tissues, particularly in the acute case where the condition is so painful.

I do not have other points to emphasize at this time, except that I have eight other cases which will be included in my next report, and one of these cases happens to be the only rectal case of trichomonas infection that I have had, and the infection in that patient cleared up promptly, using 15 grains of the sodium perborate according to the instructions which I have outlined.

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NUTRITION AND NATIONAL DEFENSE

In the last week of May there was held in Washington a National Nutrition Conference under the aegis of Mr. Paul McNutt and the Council on National Defense. As an evidence of the national interest in the subject of nutrition, it might be said that there were present over nine hundred attendants. The meeting was addressed by prominent, important officials of Washington, including the Secretary of Agriculture, Secretary of Labor, Assistant Secretary of State and others. Mrs. Roosevelt herself

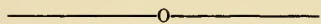
delivered a splendid half hour extemporaneous talk on the importance of the subject under discussion. There were representatives from the various professions and groups that are interested in problems having to do with nutrition.

The meeting was predicated on the studies which had been made which indicate that about forty million of the people of this country are receiving a diet which is inadequate and which is not conducive to the maximal physical efficiency of the individual. In part, the fact that approximately one-third of the population of this country is not getting the right type of diet is dependent upon economic reasons. The group as a whole represents the lower economic third of the population. In part, however, the explanation lies in the fact that people as a whole have not been taught what to eat. This is the responsibility of social workers, nurses, teachers, dietitians, and notably physicians.

The importance of proper diet is dealt with very sketchily in most medical schools. Actually the number of hours devoted to the subject in many institutions is nil. It is true that the medical student acquires knowledge of vitamins, minerals and food elements in biochemistry and physiology. He becomes acquainted with deficiency expressions as related to the patient in specific cases, but no organized effort is made to teach him, in his clinical years, the importance of a properly balanced diet. The consequence is that the doctor, succeeding his graduation, has not become sufficiently imbued with the importance of this subject. Very often he fails to recognize borderline or chronic nutritional states. If he does he will probably not give the patient specific directions, but merely point out in a general and rather haphazard way the importance of adding milk or eggs or meat or green vegetables to the diet of the patient. He does not lay down the law that foods of this type are as important as medicines and should be taken just as conscientiously and regularly as drugs. The result is that the patient has a more or less general idea about what he should eat, but as a rule he

does not understand specifically just what he must do to restore himself to good health.

It has taken a national emergency further to emphasize the importance of a well rounded, balanced diet. It is only when, in addition to the required number of energy-producing calories, the diet contains ample vitamin and mineral, that the defense worker is able to function at the peak of his efficiency. It is not only the defense workers, however, who should be considered, but also the women and children who, incidentally, are more likely to suffer from mild deficiency states than is the male, who should be taught what to eat in order to maintain good health and physical well-being.



THE FINANCIAL RELATIONS BETWEEN PATIENT AND PHYSICIAN

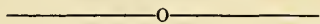
Sometime ago the Board of Regents of the American College of Surgeons issued a circular to the Fellows of the College as well as sending this to medical journals throughout the country. This circular has to do with "the principles of financial relations in the professional care of the patient." While it is true that there are probably not five doctors in the state who belong to the State Medical Society who split fees, however every doctor has at times the proposition made to him in an indirect and circuitous way to split fees with some physician under the guise other than out and out fee splitting. In order to be on the watch for these subterfuges, it would be an excellent idea for all doctors in addition to the surgeon, to adhere to the principles laid down by the College of Surgeons.

Briefly there are nine principles; the first two are to the effect that the doctor is entitled to compensation and he should acquaint his patients with the fact that they have a certain financial responsibility to those concerned in their care. The succeeding principles are much as follows: The doctor should send to the patient a detailed statement giving charges for professional services that were rendered. Combined statements should not be sent as they are subterfuges often for fee splitting. Every

doctor who took part in the care of the patient should send a personal receipt for monies received. It is not advisable for a third person to enter into financial relations between the doctor and the patient; therefore hospitals should not be encouraged to collect a physician's fees except in a case of formal organized clinics or legalized partnerships. These seven principles apply to the care of any patient irrespective of the specialty to which the consultant or surgeon belongs.

In the instance of surgeons, the last two of the nine principles apply particularly. They state that the referring doctor should not act as an assistant or anesthetist unless he is thoroughly competent by virtue of training and experience. The surgeon is expected to pay his assistant and in the event the assistant has referred the patient to the operating surgeon he in turn will send his own detailed bill, showing the charges for professional services rendered.

It is believed if these principles are followed, that fee splitting would be rendered non-existent. Aside from the fee splitting features of the statement of the Board of Regents of the College of Surgeons, the advice they give in regard to financial relations with patients is an excellent principle for all doctors to follow. Let one other thing be added; that is, bills should be rendered promptly and all financial relationships should be on a strictly business basis.



HIGH LEUKOCYTE COUNTS

One of the interesting findings in the study of the blood of various types of disease is the occasional marked increase in the number of leukocytes, resembling at times, in so far as total count is concerned, a leukemia. Even with careful study of the morphology of the blood, it is sometimes difficult to differentiate the condition from a true leukemia. There has been, on this subject, quite a bit of literature. Krumhaar¹ first called the condition leukemoid, indicating a leukemia-like blood picture. One of the most notable examples of this is the marked increase in the leukocytes, practically all round cells, which occurs occa-

sionally in whooping cough. Counts of over 100,000 are observed from time to time.

The introduction of the sulfonamide group of drugs has resulted in an aroused interest in this subject. Leukemoid reactions are by no means uncommon following the use of these therapeutic agents. These drugs often produce a leukemoid reaction, characterized by a relative and absolute increase in the polymorphonuclear cells. Frequently young immature cells which resemble those found in leukemia are found in the blood smear.

In an attempt to clarify this subject, Hill and Duncan² have prepared a classification of leukemoid reactions solely of the myeloid series. A leukemoid reaction they consider to be present when either the total count is over 50,000 or when there are many immature cells in the smear, or there is a combination of the two. Their classification of leukemoid reactions is divided into three main groups: (1) That which results from bone marrow stimulation; (2) that which depends upon the exaggerated liberation of leukocytes, in other words a marrow response to overwhelming demands; (3) ectopic hematopoiesis, under which circumstance blood is produced in foci outside of the bones as result of injury to bone marrow. The first main type is characterized by a high leukocyte count, frequently an eosinophilia, with relatively few myelocytes. The conditions that produce this include such things as complicated bone fractures, metastatic carcinoma of the bone, Hodgkin's disease, bone marrow lesions, pyogenic infections and severe reactions to intravenous medication or following blood

transfusions. In the second main group the leukocyte count is usually not as high as in the first group. Eosinophilia is uncommon and there is a greater production of immature white cells than in the first group. This type of reaction may occur in acute hemolysis and most notably and most frequently nowadays after sulfanilamide therapy. It may be noticed in the crises of pernicious anemia, after severe hemorrhage and septicemia and a few other conditions. In the third group the leukocyte count is not particularly exaggerated but there are many immature white cells in the blood smear. This type of blood picture is found in osteosclerosis, in prolonged untreated pernicious anemia, in tumors which have extensively involved the bone marrow, and in lipoid histiocytosis.

Many of these conditions are so obvious the possibility of leukemia would not be considered. In others it may be extremely difficult to differentiate the two conditions. Finally, it should be pointed out that unusual blood pictures are by no means uncommon and that they are quite likely to occur after the use of the sulfonamide drugs which are becoming so popular as to be employed in practically every type of infection. Occurring during the course of sulfonamide therapy, such leukemoid reactions are a definite indication for the cessation of therapy unless of course the patient is so critically ill that the sulfonamide seems to be the only hope of saving life.

1. Krumbharr, E. B.: Leukemoid blood pictures in various clinical conditions, *Am. J. Med. Sci.*, 172:519, 1926.

2. Hill, J. M., and Duncan, C. N.: Leukemoid reactions, *Am. J. Med. Sci.*, 201:847, 1941.

HOSPITAL STAFF TRANSACTIONS AND CLINICAL MEETINGS

CHARITY HOSPITAL New Orleans

The regular monthly meeting of the Medical Section of the Charity Hospital Visiting Staff was held on Tuesday, June 17, 1941, at 8:00 p. m., in the Auditorium on the second floor of Charity Hospital. The program consisted of the following: A Case Presentation by Dr. Edgar Hull; Case Presentation by Dr. Alice Baker.

Following the scientific program there was election of officers.

LOUIS K. LEVY, JR., M. D., Sec.

MERCY HOSPITAL New Orleans

The regular monthly meeting of the staff was held on June 4, 1941, at 8:15 p. m., and was presided over by Dr. T. F. Kirn, chairman.

By courtesy of the Petrolagar Laboratories a very interesting and beautiful film on eclampsia and its conservative therapy was shown.

This was followed by a very interesting talk (emphasized with lantern slides) by Dr. Barrett Kennedy on tuberculosis of the skin. Dr. Howles discussed the paper, emphasizing the fact that

tuberculosis of the skin has to be distinguished from other skin lesions, particularly the lymphogranulomas. Biopsy should be relied on for a diagnosis. Dr. Edgar Hull stated sarcoids do occur internally and go undiagnosed. He also stated that sarcoids are not definitely proved to be tuberculosis. Dr. John Menville also discussed the paper.

Dr. Warren Hébert then showed a case (the patient was brought in to show the staff) of carcinoma of rectum in a white male, aged 74, who presented a large growth in rectum 6-7 cm. above the anus, with better than fifty per cent of the circumference of rectum being involved and protruding into rectum.

He stated that it was impossible to fit the case into any class of surgery or to apply radium with or without colostomy. He decided on radium alone and gave 2700 mg. hours and on examination today the lumen of the bowel is normal—no evidence of growth and on digital examination posterior surface of rectum showed slight induration. The patient was presented to show the possibilities of radium in an apparent hopeless instance of a person who could not stand any type of operative procedure.

Dr. Monte then presented the deaths of the month, discussing the histories and findings. One case in particular gave rise to much discussion by Drs. Thomas, Ogden, and Monte. This case

was one of a white female, aged 32, (post-tonsillectomy) dying with acute dilatation of stomach and heart, and acute nephritis. This case was autopsied.

The reading of last meeting's minutes was dispensed with on motion by Dr. E. L. Zander, seconded by Dr. E. Hull.

A communication from the Ladies' Auxiliary was read. The contents, briefly, were that the ladies desired to know from the staff what they desired be done with money accumulated by them during the past months; whether a signal call system or some other pertinent need of the staff might be provided. Suggestions were asked for.

Dr. Zander then discussed more fully the auxiliary's intentions and moved that a committee of four members be appointed by the Chairman to discuss this matter and arrive at some conclusion. On this committee Dr. Zander was appointed Chairman with the following as members of the Committee: Drs. H. A. Thomas, W. Roeling, and John Irwin.

Two applications were received, from Drs. Theodore L. L. Soniat and Gilbert Tomskey. It was moved by Dr. Zander, seconded by Dr. Hall, that these applications be referred to the membership committee for action. Dr. Howles spoke about the picnic to be given later this month.

N. J. TESSITORE, M. D., Sec.

TRANSACTIONS OF ORLEANS PARISH MEDICAL SOCIETY

CALENDAR

- July 1. Eye, Ear, Nose and Throat Staff, 8 p. m.
- July 2. Clinico-pathologic Conference, Charity Hospital Morgue Amphitheater, 1:30 p. m.
- July 3. Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.
- July 7. Orleans Parish Medical Society Board of Directors, 8 p. m.
Clinico-pathologic Conference, Hotel Dieu, 8:15 p. m.
- July 8. Eye, Ear, Nose and Throat Society, 8 p. m.
- July 9. Clinico-pathologic Conference, Charity Hospital Morgue Amphitheater, 1:30 p. m.
- July 14. Orleans Parish Medical Society, Joint Scientific and Second Quarterly Executive Meeting, 8 p. m.
- July 16. Clinico-pathologic Conference, Charity Hospital Morgue Amphitheater, 1:30 p. m.
- July 17. Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.
- July 18. New Orleans Dispensary for Women and Children Staff, 8 p. m.

- July 21. Clinico-pathologic Conference, Baptist Hospital, 8 p. m.
- July 22. Baptist Hospital Staff, 8 p. m.
- July 23. Clinico-pathologic Conference, Charity Hospital Morgue Amphitheater, 1:30 p. m.
French Hospital Staff, 8 p. m.
Catholic Physicians' Guild, 8 p. m.
- July 24. Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.
- July 25. L. S. U. Faculty Club, 8 p. m.
- July 30. Clinico-pathologic Conference, Charity Hospital Morgue Amphitheater, 1:30 p. m.
- July 31. Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.

During the month of June the Society held one regular scientific meeting. The program was as follows:

1. Introducing a Modification of the Standard Stethoscope for Use in Mass Examinations, by Dr. Emile A. Bertucci.
2. The Neurosurgical Treatment of Sciatic Pain, by Dr. Dean H. Echols.
3. Diagnosis and Treatment of Gastric Syphilis, with Report of Case and Lantern Slides, by Dr. Grace Goldsmith.

TREASURER'S REPORT

Bank Balance, April 30, 1941.....	\$6,332.14
May Credits	\$ 531.02
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Total Credits	\$6,863.16
May Expenditures	\$ 766.08
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Actual Book Balance, May 31, 1941.....	\$6,097.08

NEWS ITEMS

Dr. Albert E. Casey was elected chairman of the Southern Section of the Society for Experimental Biology at a recent meeting of this organization. Other officers elected were Dr. Isidore Cohn, vice-chairman; and Dr. W. A. Sodeman, secretary.

Dr. F. L. Jaubert was re-elected president of the Louisiana Society for Crippled Children, at the annual meeting on May 17.

Dr. Lucien A. LeDoux attended a meeting of the Executive Committee of the Council of the Southern Medical Association in St. Louis on May 13. The annual meeting of the Southern Medical Association will be held in St. Louis on November 11-14, with headquarters at the Hotel Jefferson.

Dr. Hilliard E. Miller attended the meeting of the American Gynecological Society in Colorado Springs, May 26-28. Dr. Miller read a paper on "A Comparative Study of Total, Subtotal and Vaginal Hysterectomies."

Dr. William H. Perkins was elected president of the Council of Social Agencies at the twentieth anniversary meeting of this group.

Dr. Curtis H. Tyrone was recently appointed to the board of directors of the Department of Public Welfare of the City of New Orleans.

Dr. Gilbert C. Anderson gave a paper on "Intracranial Hydatidosis" at the recent annual meeting of the Harvey Cushing Society in Rochester, New York.

Dr. Howard Mahorner was elected to membership in the American Association for the Study of Goiter at the annual meeting in Boston, May 12-14.

Dr. Alton Ochsner presented a paper entitled "Surgical Significance of Metastasis in Primary Carcinoma of the Lung" at the meeting of the American Association for Thoracic Surgery in Toronto, June 9.

Drs. Allan Eustis and John S. Herring attended the Tri-county Medical Society meeting in Tyler-town, Miss., June 10. Dr. Eustis spoke on "The Present Status of Vitamin Therapy," and Dr. Herring spoke on "Obstetrical Hemorrhages."

Dr. Donovan C. Browne addressed the membership of the Tangipahoa Parish Medical Society at their meeting in Hammond, June 12.

Drs. John S. Herring and Harry Meyer have been certified by the American Board of Obstetrics and Gynecology.

E. L. ZANDER, M. D., Sec.

LOUISIANA STATE MEDICAL SOCIETY NEWS

CALENDAR

PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
East Baton Rouge	Second Wednesday of every month	Baton Rouge
Morehouse	Second Tuesday of every month	Bastrop
Orleans	Second Monday of every month	New Orleans
Sabine	First Wednesday of every month	
Second District	Third Thursday of every month	

FIFTH DISTRICT MEDICAL SOCIETY

The Fifth District Medical Society held its first meeting of the year at the Virginia Hotel in Monroe on Friday, May 23, 1941. The scientific program followed the dinner and consisted of the following presentations:

Dr. M. E. Lapham, Dean, Tulane University School of Medicine, New Orleans, spoke on "The Relation of a Medical School to the Community"; Dr. J. S. Speed, Willis Campbell Clinic, Memphis, Tennessee, spoke on "The Causation and Treatment of Disabilities in the Commoner Types of

Fractures"; Dr. Lucien A. LeDoux, New Orleans, spoke on "The Prevention and Repair of the Most Common Obstetrical Injuries"; Dr. Waldemar R. Metz, New Orleans, spoke on "Fractures of Facial Bones."

BI-PARISH MEDICAL SOCIETY

The Bi-parish Medical Society met in the Staff Room, East Louisiana State Hospital on June 11, 1941, after a bounteous repast in the dining room. Resolutions were read relative to the passing of our late associate Dr. C. S. Miller. On motion the

following resolutions were adopted, a copy sent to the widow of the late Dr. C. S. Miller, and a copy spread upon the minutes of the society.

Whereas, God in his wisdom has removed from the medical fraternity Dr. C. S. Miller, a member of the Bi-parish Medical Society, whose presence will be missed and mourned by its members, and

Whereas, Dr. Miller was an inspiration and guide to its members, always wisely and diligently working for the advancement of medicine and willingly and cheerfully giving much of his time to relieve the ills and physical sufferings of mankind, his interest in scientific medicine never waned during the many years he was privileged to practice his chosen profession,

Therefore, be it *Resolved* that this society extend to his bereaved widow and family our deepest and sincerest expression of sympathy in the death of Dr. C. S. Miller, a member of the Bi-parish Medical Society, and

Be it further *Resolved*, that a copy of this resolution be sent his widow and a copy spread upon the minutes of the Bi-parish Medical Society.

Signed: S. L. SHAW, M. D.

E. M. TOLER, M. D.

E. M. ROBARDS, M. D.

The scientific program consisted of an excellent paper on "Psychomatic Diseases" read by Dr. F. A. Donaldson, Superintendent of The East Louisiana State Hospital. The paper was favorably discussed by members present and a vote of thanks extended to Dr. Donaldson for the presentation of his paper. The society adjourned to meet the first Wednesday in September.

E. M. TOLER, M. D., Sec.

DR. MATAS HONORED AGAIN

Tuesday evening, June 24, a Portrait Medallion of Dr. Rudolph Matas was unveiled at the Touro Infirmary. This Medallion was prepared by the well known artist, Mrs. J. H. Manning, and is a beautiful piece of artistic work.

In the ceremony, preceding the presentation of the Medallion, which was given by the Board of Managers of Touro Infirmary, Mr. Charles Rosen, Dr. M. J. Magruder and Dr. Isidore Cohn spoke. Dr. Matas spoke in his usual felicitous vein in response to these addresses. He recounted the history of Touro Infirmary in part and spoke from first-hand information obtained during the period in which he was Chief Surgeon, 1907-1935. Since that time he has been Emeritus Chief Surgeon. A large audience composed not only of the Board members and the staff of Touro, but also Dr. Matas' many professional and lay friends attended the ceremony.

The national medical fraternity of Nu Sigma Nu (founded in 1882) represented at Tulane by Beta Iota Chapter, has awarded its "Degree of Merit," its highest distinction, to Dr. Matas. The presentation of the insignia will be made at the

annual convocation, Denver, Colorado, in 1942. Dr. James Bryan Herrick, the distinguished neurologic specialist in Chicago, will also receive the insignia of the same degree at the Denver meeting.

This degree has been conferred only nine times in the fifty years that the fraternity has been in existence.

Mrs. J. H. Hutton (Mary Louise Marshall) has been elected president of the American Library Association. Miss Marshall has been librarian of the Orleans Parish Medical Library and the Tulane Medical School Library for many years. Her many friends in the medical profession will be in accord in extending congratulations to Miss Marshall on receiving this new honor.

1941 GRADUATE FORTNIGHT

The so-called Graduate Fortnight conducted by the New York Academy of Medicine will be held this year from October 13 to 24. The subject for this year is "Cardiovascular Diseases Including Hypertension." A list of distinguished speakers has been selected for the evening lectures, from men scattered over the United States and who have carried out work in the theme subject. In the afternoon, hospital clinics are held, to be participated in by clinicians from the staff of the hospital where the clinics are conducted. In the morning panel discussions will take place. The program will be mailed on request. Address: New York Academy of Medicine.

NEWS ITEMS

On May 14, 1941, the Mississippi State Medical Association met at Biloxi, Miss., when Dr. Matas delivered the annual address. In 1915, Dr. Matas had delivered the annual address with the "Soul of the Surgeon" as his subject. The last address, under the title "The Years Between" reviewed the progress of events in the course of the intervening twenty-six years, between 1915 and 1941. The lessons of the first World War and the effects of the present menacing war crisis on America and civilization were especially analyzed from the medical viewpoint.

The U. S. Civil Service Commission announces examinations for Junior Graduate Nurse, Associate and Assistant Public Health Nursing Consultants. Applications should be filed immediately.

The National Nutrition Conference for Defense was held May 26-28 in Washington, D. C. It was pointed out at this meeting that approximately one-third of all families in the United States are living on a diet which is inadequate.

AMERICAN CONGRESS OF PHYSICAL THERAPY

The Congress will be held September 1-5, inclusive, at the Mayflower Hotel, Washington, D. C.

For further information, address the American Congress of Physical Therapy, 30 North Michigan Avenue, Chicago.

AMERICAN COLLEGE OF PHYSICIANS

The twenty-sixth annual session of the College will be held in St. Paul, April 20-24, 1942. Dr. Roger I. Lee, President of the College, has charge of the program of the general session; Dr. John A. Lepak, of St. Paul, has been appointed general chairman in charge of hospital clinics, round-table discussions, and all local arrangements.

The members of the Orleans Parish Medical Society regret that Senior Surgeon W. L. Smith has been relieved from duty at the U. S. Marine Hospital in New Orleans and ordered to Kentucky. Dr. Smith has been active in furthering the joint meetings of the society and the staff of the hospital. His leaving New Orleans will occasion regret among the many members of the profession who have been in attendance at the interesting clinical meetings where Dr. Smith has dispensed hospitality and participated in scientific discussion.

INFECTIOUS DISEASES IN LOUISIANA

The morbidity report of the Section of Epidemiology of the Louisiana State Department of Health for the week of May 17 listed surprisingly few reportable diseases, only six diseases being found in numbers greater than ten: 159 cases of syphilis, 52 of measles, 40 of pulmonary tuberculosis, 26 of pneumonia, 14 of whooping cough, and 12 of cancer. Of the rarer diseases there was found a case of poliomyelitis in Lincoln Parish; a typhus fever patient was discovered in Iberia. The report for the week ending May 24 showed again the same state of affairs existing as in the previous week; there were listed 198 cases of syphilis, followed by 78 of gonorrhea, 27 each of measles and pulmonary tuberculosis, 17 of cancer, and 10 of pneumonia. Two cases of tularemia were reported this week, three of undulant fever, and one of typhus fever. For the twenty-second week of the year, closing May 13, 188 cases of syphilis were listed, followed by 36 of cancer, 26 of pulmonary tuberculosis, 20 of gonorrhea, 17 of measles, 13 of typhoid fever, and 11 of malaria. The typhoid fever cases were distributed as follows: Caddo 1, Catahoula 8, East Baton Rouge 1, Orleans 2, and Richland 1. Iberia reported a case of undulant fever, and Orleans one of epidemic cerebrospinal meningitis. In the twenty-third week of the year, the morbidity report became more natural. Syphilis as always led the list with 165 cases, followed by 30 of gonorrhea, 28 of pulmonary tuberculosis, 18 each of measles and pneumonia, 17 of malaria, 14 of epidemic dysentery, 12 of cancer, and 10 of septic sore throat. One case of smallpox was reported this week. Three typhus fever cases were listed, two from Tangipahoa and one from Vermilion; three cases of typhoid fever were discovered, one each in

Caddo, Jackson, and Washington. Orleans Parish reported three cases of epidemic cerebrospinal meningitis.

HEALTH OF NEW ORLEANS

The Bureau of the Census, U. S. Department of Commerce, has to report that for the week ending May 10 there were 132 deaths in the City of New Orleans as contrasted with 135 the previous week and divided 77 white, 55 negro, and 19 infant. The infant deaths were divided into nine white and 10 negro. For the week closing May 17, only 117 deaths were listed, a surprisingly low death rate compared with the three year average of 145. Seventy-three of these deaths occurred in the white and 44 in the negro population, and there were three white and 11 negro infant deaths. For the succeeding week, which terminated May 24, the death rate jumped up to the average for this period of the year, 134 deaths being reported, of which 89 were in the white and 45 in the negro race. There were 14 infant deaths divided equally between the two races. For the week which closed May 31 the number of deaths in the city was 131, divided 74 white and 57 negro, and again there were 14 infant deaths in the total, again divided fifty-fifty between the two races. There was a sharp diminution in the number of deaths in the week of June 7. Of the 106 deaths, 68 were listed as white and 38 as negro; of the ten infant deaths, six were white and four negro.

WOMAN'S AUXILIARY

Louisiana State Medical Society

The president, Mrs. Aynaud Hébert, has issued this complete list of officers, standing committee chairmen, councilors, and advisory councilors for the year 1941.

President, Louisiana State Medical Society

Dr. King Rand, Alexandria

ADVISORY COUNCIL

Dr. W. R. Metz, New Orleans

Dr. W. S. Kerlin, Shreveport

OFFICERS

President—Mrs. Aynaud F. Hébert, New Orleans.

President-Elect—Mrs. Clarence B. Erickson, Shreveport.

First Vice-President—Mrs. H. O. Barker, Alexandria.

Second Vice-President—Mrs. Cecil O. Lorio, Baton Rouge.

Third Vice-President—Mrs. B. L. Cook, Minden.

Fourth Vice-President—Mrs. R. W. O'Donnell, Monroe.

Treasurer—Mrs. Daniel J. Murphy, New Orleans.

Recording Secretary—Mrs. Rhodes Spedale, Plaquemine.

Corresponding Secretary—Mrs. Chas. R. Hume, New Orleans.

CHAIRMEN OF STANDING COMMITTEES

Archives—Mrs. William Kohlman, New Orleans.
 Doctors' Day—Mrs. J. P. Mauboules, Rayne.
 Exhibits—Mrs. Waldemar Metz, New Orleans.
 Finance—Mrs. M. C. Wiginton, Hammond.
 Historian—Mrs. John S. Dunn, New Orleans.
 Indigent Physicians' Fund—Mrs. John D. Frazar, DeRidder.
 Legislation—Mrs. Joseph E. Heard, Shreveport.
 Organization—Mrs. Fred L. Fenno, New Orleans.
 Parliamentary—Mrs. John L. Scales, Shreveport.
 Press and Publicity—Mrs. Jules Myron Davidson, New Orleans.
 Program—Mrs. P. A. Donaldson, Reserve.
 Printing and Supplies—Mrs. H. Theodore Simon, New Orleans.
 Public Relations—Mrs. J. O. Duhon, Lafayette.

Revision of By-Laws—Mrs. Paul G. Lacroix, New Orleans.

Circulation—Mrs. Carroll Gelbke, New Orleans.

COUNCILORS

First District—Mrs. Edmond Souchon, New Orleans.

Second District—Mrs. Roy B. Harrison, New Orleans.

Third District—Mrs. Edwin Landry, New Iberia.

Fourth District—Mrs. M. D. Hargrove, Shreveport.

Fifth District—Mrs. A. D. Tisdale, Monroe.

Sixth District—Mrs. Brinsfield King, Baton Rouge.

Seventh District—Mrs. Walter Moss, Lake Charles.

Eighth District—Mrs. M. H. Foster, Alexandria.

Respectfully submitted,

MRS. JULES MYRON DAVIDSON,

Chairman, Press and Publicity.

 BOOK REVIEWS

Illustrations of Bandaging and First-Aid: Compiled by Lois Oakes, S. R. N., D. N. Baltimore, Williams and Wilkins Co., 1940. Pp. 248. Price \$2.00.

This is a very practical book for the layman, boy scout, and young doctor. Bandaging is a subject often neglected in medical schools and is learned during internship or by experience in practice. Every graduate should read this little book prior to his activities as an intern.

E. J. GILES, M. D.

Medical State Board Examinations: Topical Summaries and Answers: By Harold Rypins, A. B., M. D., F. A. C. P. 4th. ed. Philadelphia, J. B. Lippincott Co., 1939. Pp. 448. Price \$4.50.

This edition, just as its predecessors, affords a rapid means of review for all branches of medicine and surgery. Primarily the author assumes that the reader will have sufficiently wide range of knowledge to allow only the essential high points to be stressed. The arrangement of the book into sections of Anatomy, Physiology, Chemistry, Bacteriology, Pathology, Hygiene and Preventive Medicine, Obstetrics and Gynecology, Medicine and Surgery, covers the necessary field of review quite satisfactorily. The placing of the questions at the end of each section, affords a means of checking on one's grasp of any one subject, and also clarifies the subject more than the older system of arranging the whole book in question and answer form. For the prospective candidate for the State Board examination the book is well worth reading.

FRANK J. COX, M. D.

A Surgeon Explains to the Layman: By M. Benmosché, M. D. New York, Simon and Schuster, 1940. Pp. 317. Price \$3.00.

Whether there is a real need for such a book as this is the first point to be considered in discussing it. Speaking as a surgeon, the reviewer would say that any book on surgery which would drive the reader more rapidly to the surgeon when the need for him arose would be heartily welcome. Any book which removed from the lay mind the terror still attached to the word operation would be equally welcome. Finally, any book would be welcome which could make clear the miracles capable of accomplishment by promptly and properly performed surgery.

Whether such purposes can be achieved by taking the public entirely and technically into the surgeon's confidence is another matter. Every surgeon is cursed by patients who show the disastrous effects of a little knowledge. The present reviewer rather fears that the readers of this book will increase the number of those thus dangerously informed.

Take the subject of appendicitis, for instance. Most of what the author says about it is beyond reproach. The opening paragraphs of the section devoted to it make clear that it is a dangerous and treacherous disease, frequently atypical in its manifestations, and always urgent. But the effect of the urgency is lost by the interruption of the discussion by some paragraphs on chronic appendicitis. It is still further destroyed by the section called "The Operation Itself," in which, according to the first paragraph, the patient suffering from acute appendicitis "is followed through every step of his experience."

"Unless he is an emergency case where the doctor decided that extreme haste is imperative," writes the author (with a fine disregard of rhetoric and diction) "he will spend a quiet night at the hospital. If he is fidgety he will be given a light sedative to insure a good night's sleep. And all that night everything will be held in readiness for an immediate operation in case his appendix decides to flare up suddenly. In the morning . . ."—in the morning comes the operation.

Surgeons who desire to emphasize the urgency of acute appendicitis do not write thus. It would be rather difficult to persuade a patient with a presumable gangrenous appendix, in the dangerous period of calm, to let himself be operated on at once if he had read and inwardly digested this book. He would probably insist that he have his "good night's sleep" in his own bed at home.

The discussion of the blood count in acute appendicitis is somewhat misleading. As the author says of the leukocytosis of 22,000 cells which he mentions as illustrative, "That's quite a sharp increase over normal." It is so sharp an increase, in fact, that even in atypical appendicitis it is atypical. As every experienced surgeon knows, and as every patient who is to be informed of the matter should be told, the white blood cell count in any variety of acute appendicitis may be anything at all.

Operation for presumable appendicitis when the real diagnosis is pneumonia is by no means as disastrous as the author implies. If the differential diagnosis cannot be made positively—as it sometimes cannot be—an unnecessary operation in the presence of pneumonia is likely to be far less disastrous than abstinence from operation in the presence of possible acute appendicitis. In the reviewer's opinion, the proper thing to teach the laity is that in certain cases there is no way in the world of determining the only really important point, that the disease is *not* acute appendicitis, and that the patient's best interests are sometimes served by a laparotomy that proves to be unnecessary. The author's teaching is also somewhat out of line with general practice when he states that it is now considered best to make a midline incision when operating on a woman for acute appendicitis and a right rectus or McBurney incision when operating on a man.

Turning to other matters, it is doubtful that the choice between the medical and surgical treatment of peptic ulcer "is not as complicated as you would think." Most surgeons would dispute that statement, and the internists would be on their side. The choice between cholecystectomy and cholecystostomy, according to the author, is decidedly more complicated, though most surgeons believe that the place of cholecystostomy has been definitely established and is very limited indeed.

"The forbidden temple" is today a somewhat misleading term even for the heart, and is certainly a misleading term for the brain and the chest.

Stage surgery is not mentioned in the discussion of thoracoplasty, and the number of persons alive and active after that operation belies the statement that it is "a last resort," which conveys an idea of antemortem desperation certainly not implicit in the procedure.

The section on preparation for biliary tract surgery is brief and casual, and it might be difficult to prepare a jaundiced patient for surgery if he had read it and accepted it. The most startling omission in the whole book occurs in this section. The patient with the hemorrhagic diathesis in jaundice is dismissed in two sentences, and his special therapy consists of "doses of calcium chloride over a period of a few days before operation." This is dangerously misleading teaching in the year 1940, more than five years after the first satisfactory test for the hemorrhagic diathesis was devised, more than four years since vitamin K-bile salt therapy first provided the surgeon with the practical solution of that formerly highly fatal state.

The language of the book, as the foreword states, is colloquial. It is almost too colloquial, perhaps, for so serious a theme. Furthermore, the statement that "Surgery itself is never very complicated," reduces the matter to far too simple terms. The line drawings, which are entirely diagrammatic and are numerous (although not numbered), are probably adequate for their purposes.

Most of these comments, however, beg the issue. The chief issue is still whether there is a real need for this particular kind of book, and of that this reviewer still remains in very considerable doubt.

FREDERICK FITZHERBERT BOYCE, M. D.

Behind the Scenes of Murder: By Joseph Catton, M. D. New York, W. W. Norton & Co., Inc. Pp. 355. Price \$3.00.

This book is an account of the experiences of a well known psychiatric expert witness with murderers and criminals. Some of these people were at one time very well known. In fact, Dr. Catton has had the opportunity of observing and studying some of the most widely publicized criminals whose names at one time or another were almost household words. Some of the better known included Hickman, murderer of little Marian Parker, Winnie Judd who killed two of her women friends and then mimicked insanity to escape hanging, the Honolulu honor slaying participants, Harry French and many others.

The psychologic study of these various murderers is enlightening and informative. A murderer may be the result of any one of a number of causes, some of which may be the result of demonstrable mental derangement which could be labeled insanity, while other instances are merely temporary or moderately slight deviations from normal. Most of the book will be found of considerable interest to the average lay reader. To the physician and particularly to one who is likely to be called on as an expert witness the book gives many suggestions as

to the examination of the patient and as to the testimony that the physician should give and as how best to present it. Suggestions are also advanced as to how the expert witness should conduct himself on the stand when he is badgered and irritated by the defense attorney. The doctor will find interesting also the sections that have more general appeal and which apparently have been written in goodly part for the student of crime who is not a physician.

J. H. MUSSER, M. D.

The Medical Reports of John Y. Bassett, M. D., the Alabama Student: With introduction by Daniel C. Elkin, M. D. Springfield, Charles C Thomas, 1941. Pp. 62. Price \$1.50.

In this small book are reprinted two of the medical reports of the Alabama physician, John Y. Bassett. It is these unique reports which so fascinated the great humanitarian Sir William Osler, and led him to write his essay, *The Alabama Student*. The charm which attracted Osler is still present in every page in these reports. Almost more philosophic than medical, they are full of rare case histories, satirical anecdotes, serious medical descriptions, and humorous side remarks, which are bound to charm even the casual reader. In this book, Bassett, the free-thinker, is made available in his original, intimate form.

ROBERT MUNGER, M. D.

Electrocardiography in Practice: By Ashton Graybiel, M. D., and Paul D. White, M. D. Philadelphia, W. B. Saunders Company, 1941. Pp. 319. Price \$6.00.

White is already well known through his books and papers, Graybiel well remembered for his part in this outstanding publication. Unquestionably this is the most practical presentation on electrocardiography published. The absence of theoretical considerations renders it concise; the special illustrative attention given to normal and to departures from the normal range, close and far, is expansive in its thoroughness. The novel plan of the book in carrying a descriptive treatise on the even numbered page and the illustrative cardiogram on the uneven is a commendable arrangement which eliminates the distraction of fumbling pages.

The cardiologist will find it interesting and complete. The practitioner and student will enjoy satisfaction in comparing their decisions with the authority of the authors and will gather a reading knowledge difficult to obtain otherwise. The teacher gains a pleasing collection for instruction which needs no supplement and which carries all the benefits of an extensive background of experience and study.

GORDON MCHARDY, M. D.

Clinical Pellagra: By Seale Harris, M. D., assisted by Seale Harris, Jr., M. D., with foreword by E. V. McCollum, Ph. D., LL. D., and contributed to by Julian M. Ruffin, M. D., David T. Smith, M. D., V. P. W. Sydenstricker, M. D., Katherine Dodd, M. D., William B. Porter, M. D., Upshur Higginbotham, M. D., Don C. Sutton, M. S., M. D., John Ashworth, M. D., and William D. Partlow, M. D. St. Louis, The C. V. Mosby Company, 1941. Pp. 494; 66 illus. and four color pl. Price \$7.00.

This excellent clinical study of pellagra covers in an interesting manner the history of the disease, the theories of epidemiology and etiology, and the pathology, symptomatology and treatment. It also includes recent clinical investigations of special interest.

One hundred nine of the 438 pages of text are devoted to the history of man's attempts to solve the problem of pellagra. It is fair to complain that the duplication of material in some of these chapters might profitably be eliminated. On the other hand, it really does require less space to tell what is known of the disease than it does to recount its history and to give adequate recognition to the many who have worked in this field and to their theories about the disease.

Generally speaking, the sequence of chapters could be more logical. There is no apparent reason, for instance, for inserting the chapter on alcoholic pellagra between the chapter on history and epidemiology in the United States and the chapter on the historical review of the search for the causes of pellagra.

It would also seem more logical for the discussion of pathology to follow the clinical presentation.

Anyone who reads this book will realize that a crusader has had a major part in its production. The chapters on devitaminized foods (XXVII) and on pellagra and Southern prosperity (XXVIII) as well as other aspects of the book bear witness to that.

The senior author's own views regarding the genesis of pellagra and his review of the relationship to each other of pellagra, pernicious anemia and sprue indicate the relative complexity of the clinical problem. The biochemist speaks simply of a nicotinic acid deficiency, but the term takes on far wider implications when the clinician attempts to determine the primary cause of the deficiency in the individual patient under his observation. The point is well taken that while the simple deficiency may cause many of the phenomena of clinical pellagra, its causes are many and not yet clearly understood, and the resulting deficiency may be not pure but mixed.

The chapters by the contributing authors form a very important part of the book, particularly the chapters contributed from Duke University, the University of Georgia, and Vanderbilt University. The contribution from Duke University cov-

ers clinical investigations on the effect of radiant energy on the clinical manifestations of pellagra and the use of liver extract and nicotinic acid therapy. The contributions from the University of Georgia, in addition to a general survey of 660 cases, include studies on the possible rôle of an intrinsic gastric factor in the etiology and treatment of the disease and a comparative study of various specific measures such as stomach preparations, liver extracts and nicotinic acid. The contribution from Vanderbilt University treats the subject of pellagra in childhood and is of special significance.

The book is stimulating because of the various points of view presented in it. On the other hand, a more discriminating selection of material might perhaps have made it of wider usefulness.

ROBERT C. LOWE, M. D.

Studies on Tuberculosis: By Eugene D. Opie, E. Joyce Saward, Persis Putnam, A. H. Graham, and P. W. Auston. Baltimore, The Johns Hopkins Press, 1941. Pp. 198. Price \$1.10.

This monograph, number 16 in a series from the American Journal of Hygiene, is an epidemiologic study of tuberculosis among negroes in Jamaica and Alabama. Tuberculin tests, roentgenologic surveys, and analyses of tuberculous households have been used in a manner similar to the methods of the Phipps Institute in Philadelphia. Statistical methods have been employed throughout. The text and numerous tables and figures furnish comparisons between infection rates, attack rates, and mortality rates for negroes in Jamaica slums, in rural Alabama, and in Philadelphia, as well as the comparable figures for the white population in the same areas. The conclusions serve to confirm most clinical impressions concerning the spread and behavior of tuberculosis among negroes and to correct certain false ideas on this subject. The findings are directly applicable to the problem of tuberculosis control among the negroes of Louisiana. This monograph should be studied by physicians treating tuberculosis among negroes and by public health workers who have to deal with this problem.

J. L. WILSON, M. D.

Textbook of Medicine by American Authors: Edited by Russell L. Cecil, A. B., M. D., Sc. D., and Foster Kennedy, M. D., F. R. S. E. 5th ed. Philadelphia and London, W. B. Saunders Company, 1940. Pp. 1744; 173 illus. Price \$9.50.

Since the first edition was published in 1927, this book has been a standard text in the field of medical education in the United States. The editors' efforts to keep it fully up-to-date have now produced a fifth edition, which contains numerous additions and revisions. Some of the changes are more important than others, but the sum total is

impressive. The plan of the original text has been continued, as in the previous editions, that is, each disease is considered, so far as is practical, by an author who is especially familiar with it.

The question perennially posed to medical educators as to the merits of one type of textbook of medicine over another is difficult if not impossible to answer to the satisfaction of all concerned. The editors of this particular text have chosen to produce and to continue to produce the symposium type of text, foregoing the brevity of the outline type of book for the sake of greater detail and completeness.

The references are for the most part excellent and to the point, and the lists at the end of each special subject are adequate and not too extensive. By far the greater number are in English and are easily available in the usual medical library. For these reasons the book has a permanent value for the practicing physician. The detail in which a text is written may to some extent offset the lack of accessibility of reference material, but readily available bibliographies mean much to a busy practitioner who can spend no time assembling them himself.

In spite of the multiple authorship of the various sections, the style and manner of presentation are surprisingly consistent. The text is not profusely illustrated, but the illustrations are sufficient for the purpose and are well chosen.

ROBERT C. LOWE, M. D.

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THE IMPORTANCE OF VENEREAL DISEASE CONTROL IN LOUISIANA*

EUGENE B. VICKERY, M. D.
NEW ORLEANS

Thirty-five years have passed since the discovery of the etiologic organism of syphilis—the *Treponema pallida*—by Schaudinn. Shortly after this Wassermann contributed his serologic test for diagnosis and Ehrlich brought forward an arsenical chemical compound (salvarsan) which has proved highly effective in the treatment of lues. Since these epochal contributions a great mass of facts concerning the disease itself and the treatment thereof has been added to the volume of syphilitic information by numerous observers, so that today our knowledge of the disease as to its latency (which implies trickiness) and as to its persistence is well organized. Likewise the various tests for diagnosis and prognosis have become more or less uniform in procedure and interpretation. Finally it might also be said that the accepted type and amount of treatment necessary for cure of the disease has become fairly well standardized.

In spite of this accumulation of knowledge only a moderate percentage of the victims of syphilis have been benefited. This has been due to taboo in discussion of the disease, secrecy on account of social stigma, indifference and ignorance on the part of patients. Physicians have rendered excellent service to individual patients in many instances, but among the profession there is a lack of conviction of the need and pessimism as to what can be accomplished by

treatment of the masses. Thus there is a feeling of uncertainty—but this much is certain—organized medicine has been unsuccessful in reducing the incidence of syphilis in the States so far until an organized administrative movement to cooperate with practitioners has been instituted. It was recognition of this necessity which led the surgeon-general, Dr. Thomas Parran, in 1936, to initiate a national venereal disease control program. Several of the states are well along the road in their effort in this line, as evidenced by a relatively low incidence of the disease. In Louisiana there is a high incidence of infection (which will be brought out later) and the problem is a serious challenge to the medical profession. Already the groundwork has been laid in setting up clinics available to most of the population and in standardization of diagnostic laboratory tests. A creditable showing is being made in the field, but this is not enough—the primary and highly important problem is that of finding the cases.

INCIDENCE

The very nature of syphilis, the insidious course in the period of latency after the primary and secondary stages have passed, makes it difficult for the afflicted individual to realize the seriousness of his predicament and to cause him to seek treatment when he has no complaint. However, this difficulty may be overcome both by education of the public as to the necessity of physical examination and Wassermann tests, and the requirement of examination in certain available groups. Surveys may be conducted in many large industrial organizations and in some of the social groups who come under governmental supervision.

*Read before the sixty-second annual meeting of the Louisiana State Medical Society, Shreveport, April 21, 1941.

These surveys are of immense importance in finding syphilis. Compulsory legal methods for the control of venereal disease have been effective in Sweden, Norway, Denmark and Russia, and it is noteworthy that the incidence of syphilis and gonorrhea is least in that country which has the most stringent regulations, namely, Sweden. In Sweden the incidence rate for acquired syphilis dropped from 10.2 per 10,000 population in 1919 to 0.67 in 1935, whereas the rate in the United States today is 22.4 per 10,000 population. Great Britain and Holland have depended on educational methods rather than compulsory regulations with fairly good results. The incidence rate for acquired syphilis in Britain in 1935 was 1.47 per 10,000 population. The principal idea in the British plan is to make treatment free, efficient, easily available and confidential, and to educate the public. Statutes enacted for the control of venereal disease include reporting of cases, the child health laws (which require Wassermann examinations in expectant mothers to facilitate prenatal treatment in infected women), premarital examinations including serologic tests and regulations to control individuals who have the disease (including isolation) in order to force these patients to submit to treatment until at least the communicable stage of the disease has passed. How much these laws may interfere with a citizen's personal rights and liberties, and how far they should go are entirely a personal equation; but one must consider the well-being of the body politic as well as personal privileges in forming an opinion. Legal measures in Louisiana have thus far been enacted without any penalty of moment for physicians concerned, mainly for the protection of the medical profession, and it is to be hoped that more stringent laws will not be necessary. Thus we may say that the purpose of existing Louisiana laws is primarily education, that is, they indicate to the public the importance of venereal disease and its control.

PROGRAM FOR CONTROL

In setting up a program for the control of social disease by the Public Health Serv-

ice more emphasis has been placed on syphilis than other of the venereal diseases for good reasons. Lues and gonorrhea are by far the more common infections. Gonorrhea requires an absolute cure to render it innocuous for individuals who come in sexual contact with its host, and the difficulty of securing dependable tests in suspected cases (particularly in the female) is well known. This is borne out by the relatively poorer success reported in control of gonorrhea in the Scandinavian countries than in the control of lues. Syphilis is more readily diagnosed by serologic tests and victims become non-infectious before a complete cure is attained. These facts, together with the prospect of deferred pain, disability and death, make syphilis the major venereal disease of public health importance. In view of these considerations it seems logical that syphilis is the primary problem.

In a study of any disease we are not only confronted with the immediate result of pain, suffering, disability and grief experienced by the patient and his relatives, but we are also concerned with the economic problem from a public standpoint. Syphilis is undoubtedly one of the (if not the leading) causes of disability which leads to public care for its victim. This fact is reflected in a small measure in the isolated statistics available in the State of Louisiana. National statistics show a large amount of money is expended annually for care of syphilitics, and in Louisiana the economic problem is greater in proportion on account of a high incidence of the disease.

VITAL STATISTICS

Vital statistics are not reliable in the consideration of the incidence of syphilis. This is easily understandable as in many instances syphilis is unrecognized as an underlying cause and the condition is reported merely as such—heart disease, or vascular disease. In addition, many physicians hesitate to put the stigma of the malady on surviving relatives. The American Social Hygiene Association estimates on reliable statistics in the United States:

1. That over 100,000 persons die each year from syphilis.
2. Forty thousand people die each year because of syphilitic heart disease.
3. Twenty-five thousand babies die each year from syphilis, though J. Whitridge Williams found the incidence of syphilis in children 3.5 per cent in the Johns Hopkins Clinic.
4. Ten million people now have or have had syphilis.
5. One in 10 cases of insanity is due to syphilis.
6. One in seven cases of blindness is due to syphilis.

Reliable statistics also estimate that 60 per cent of the male population acquires gonorrhea at some time during their life.

Below is a report from the Charity Hospital of New Orleans, in 1940.

	Number Cases	Hospital Days	Deaths
Gonorrhea—all types	525	6,028	7
Lymphogranuloma inguinale	247	3,524	6
Chancroid	41	439	6
Granuloma inguinale	77	1,496	1
Syphilis—all types	3,915	66,093	222
Totals	4,805	77,580	236
Of syphilis cases above, Luetic heart disease	424	7,815	114
C.N.S. lues	521	6,706	6

Other state institutions show:

Shreveport Charity Hospital—1939.
Syphilis—320 cases.
Avg. hospital days stay for all admissions—10 days.
Avg. cost per patient per day—\$1.53.
Lafayette Charity Hospital—1940.
Syphilis—13 cases—113 hospital days.
Avg. cost per patient per day—\$2.50.
Central Louisiana State Hospital—1940.
Syphilis—62 cases—hospital days ?

A Wassermann survey of Louisiana draftees as of March 15, 1941, shows:

Total—	19,931
Positive—	2,536, or 12.72%
Doubtful—	366, or 1.83%
Negative—	17,029, or 85.45%.

A comparison with statistics* of other states reveals:

Group 1 — Average Rate 7 per 1,000		
Minnesota	Rhode Island	Utah
North Dakota	Wisconsin	Nebraska

*Preliminary returns on 120,751 men examined for syphilis by Selective Service Boards November and December, 1940.

†Based on 133,117 Registrants.

Group 2 — Average Rate 19 per 1,000			
Wyoming	Colorado	Ohio	New York
Michigan	New Jersey	Montana	Kansas

Group 3 — Average Rate 61 per 1,000			
West Virginia	Maryland	North Carolina†	
Oklahoma	Tennessee	Alabama	

Group 4 — Average Rate 114 per 1,000			
Georgia	Louisiana	Mississippi	Florida

(Rates per 1,000 men examined, based on positive blood tests and clinical findings).

A Wassermann Survey of W.P.A. employees by Dr. A. B. Price of the State Department of Health as of September 30, 1940, in New Orleans is as follows:

	Total	Negative	Positive	Per Cent Positive
White— Male—	1,865	1,743	122	6.5
Female—	985	943	42	4.2
Colored— Male—	3,291	2,214	1,077	32.6
Female—	190	156	34	17.9
Totals—	6,331	5,056	1,275	20.1

A report from Dr. Myron A. Walker at the Louisiana State Penal Farm discloses that approximately 450 of 3,100 inmates have a positive Wassermann.

CONCLUSION

It is evident that:

1. The incidence of syphilis in Louisiana is relatively high.
2. Organized medicine alone has been unsuccessful in the control of venereal disease.
3. Cooperation between organized medicine and the public health service is desirable for venereal disease control.

DISCUSSION

Dr. I. B. Rougon (Shreveport): Dr. Vickery has covered the subject of venereal disease control in a very exhaustive and thorough manner and there is little that I can add except to emphasize what has already been said.

It seems that it takes a war or a national crisis to bring the American public to a realization of their responsibility to protect the health of their community from the inroads of the great scourges—syphilis and gonorrhea.

It took the World War of 1918 to awaken the public of the menace and disgrace of legalized prostitution before it was abolished. This, the very foundation upon which venereal diseases rests, flourished in this country and it took a war to make us realize what it was doing to public morals and the dissemination of venereal diseases amongst our citizens. Years have passed, time marches on, and our enthusiasm has cooled in the fight against venereal disease and now that there is war again

we are getting venereal disease conscious once more. The control and eradication of syphilis and gonorrhea is in the limelight once more. Only a few short months ago people did not write about syphilis and gonorrhea in popular magazines. Today the demand for such articles strains the capacity of medical writers. The public has awakened once more and wants a frank and accurate discussion of this subject.

Think of this! Every year 1,000,000 Americans contract syphilis and perhaps four to five times that many contract gonorrhea.

A determined attack on syphilis is being made and perhaps it will take a generation to eradicate it. Due to the length of time it takes to cure this disease, its eradication will be difficult. Think of the morbidity of this disease: (1) Insanity—one case in every ten is caused by syphilis; (2) locomotor ataxia; (3) blindness—one case in every six is caused by syphilis; (4) heart disease—40,000 persons die in this country as a result of syphilitic heart disease.

Gonorrhea now with late methods of treatment has become less of a problem than heretofore, because its cure by means of sulfathiazole and sulfa-

pyridine has been simplified. It too carries its toll of human misery—gonorrheal rheumatism, sterility, blindness and many other woes.

The actual work of stamping out venereal disease rests with individual states and they are nobly doing their part. Departments for venereal disease work have been set up in 32 states. These have established effective treatment centers, discovered thousands of cases of the diseases and persuaded patients to take up treatment and carry on to cure. The Louisiana State Department of Health is to be congratulated on the work that they are doing along this line. It is spending large sums of money in establishing venereal disease clinics for diagnosis and treatment.

Millions of dollars now spent for the control and eradication of venereal diseases would be unnecessary if our youths were taught the dangers of such diseases and avoidance of infection, and if we cleaned up sources of corruption. Law enforcement agencies must attack vice rings which exploit vice, they must clean out sinkholes which pollute our communities.

Education, more education, and more public meetings, and discussions, such as this one, will go a long way towards solving these problems.

THE PUBLIC HEALTH ASPECTS OF PULMONARY TUBERCULOSIS

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CROWLEY, LA.

In view of the current Anti-Tuberculosis Campaign being waged in Louisiana, it is quite fitting that tuberculosis be considered in the light of modern public health practice. Tuberculosis control today is generally accepted as one of the basic activities of state and local health departments, and, justly so, because the control of this disease is generally considered a major public health problem.

It has been wisely said that the tubercle bacillus is no respecter of persons or localities. In the past much has been accomplished in tuberculosis control throughout the United States, and diagnostic facilities regarding this disease have been improved one hundred per cent, but it may be said without fear of contradiction, that the State of Louisiana has not kept pace with the rate of progress made by the majority of other states of the Union. This situation is lamentable, and it is fervently hoped that the

tuberculosis control program will go steadily forward in future years.

We have stated that the control of tuberculosis has been duly classified as a major public health problem, not only in the United States, but more so in the State of Louisiana, and, as such, warrants the combined efforts of the medical and public health professions, and the lay public in an attempt to eradicate the "White Plague" from the State. This terrible scourge is still responsible for much unnecessary suffering and economic loss, and still claims sixty-five deaths per hundred thousand population in the State of Louisiana.

It might be well to define the term, "public health" before considering the disease, tuberculosis, itself. C. E. A. Winslow of Yale recently propounded the following definition of public health, which is generally accepted: "Public health is the art and science of preventing disease, prolonging life, and promoting physical and mental efficiency through organized community effort."

We may well ask ourselves why tuberculosis is considered a public health problem.

Mustard¹ has recently summed up the situation in the following manner:

- (1) It is a communicable disease.
- (2) It is preventable.
- (3) It is a disease of the masses.
- (4) Protective measures and public health laws require that the Health Department exert efforts to control the spread of this disease.

EPIDEMIOLOGY

It is a matter of common knowledge that the etiologic agent of tuberculosis is the tubercle bacillus, discovered by Koch in 1882, but the conditions which must be present in order that adult tuberculosis develop include something more than infection by the tubercle bacillus.² It is generally agreed that if a person is exposed to the tubercle bacillus long enough, he will contract the disease. The contagious nature of tuberculosis has been known for many centuries but it was not definitely established until Villemin made his notable observation that the disease developed in crowded and congested areas, and that it was readily transmitted from person to person by intimate familial contact. He associated insanitary living conditions with the dissemination of the disease. Following Villemin's contribution to the knowledge of tuberculous infection, it became increasingly evident to scientists engaged in tuberculosis work that the disease behaved differently in the mode of transmission from other contagious diseases, such as scarlet fever and diphtheria. As early as 1817, Laënnec observed that nurses caring for tuberculous patients did not all contract the disease; some seemed to be resistant to tuberculous infection, in spite of the fact that all were exposed to the same degree.

It soon became apparent that a second factor was necessary following infection in order to contract the adult type of tuberculosis. This second factor was determined to be general bodily resistance.² The question arises whether or not the primary phase of tuberculous infection confers any immunity. Besançon³ presented some evidence of natural resistance; he observed that 18 per cent of children living in an

infected environment, and exposed to infectious cases of tuberculosis, did not react to tuberculin. Then, on the other hand, Ch'iu, Myers, and Stewart⁴ reported on the fate of children with primary tuberculosis. They found that, out of 446 children who reacted to tuberculin at the average age of seven years, 15 per cent had developed the disease or died of it within ten years, whereas of 772 children who were non-reactors to tuberculin at the average age of 6.6 years, only 1.7 per cent had fallen ill from tuberculosis when traced ten or more years later. This evidence would tend to militate against the thesis that the primary phase of tuberculosis confers any resistance.

In Europe it is generally believed that passive immunity can be conferred to newborns by inoculation with an attenuated strain of the tubercle bacillus, known as the B. C. G. vaccine. Experiments in this country by Park in New York indicate that the vaccine is innocuous, but the degree of immunity conferred is too uncertain to be relied upon. B. C. G. is not generally used in this country. It is generally agreed by tuberculosis workers in this country, at least, that immunity to tuberculosis does not exist.

At the thirty-sixth annual meeting of the National Tuberculosis Association (1940), Henry D. Chadwick,⁵ in his presidential address, took as his subject, "The Subjugation of Tuberculosis." Some of the high lights of his address are as follows: "One of the great achievements of the twentieth century will be the subjugation of tuberculosis. We are far enough along in the campaign that started when the National Tuberculosis Association was organized 36 years ago to be quite certain that eventually victory will be won. We must not be too complaisant, however, as we are dealing with a very resourceful opponent who will take advantage of any weakening of our defenses to make a counter attack.

"In the early days of the Association the stress was put upon treatment, later on prevention, then on health education and on case-finding—these four together with re-

search make up the forces that under one coordinated command are now in the field doing valiant work against the disease. Much has been accomplished. The death rate has dropped 76 per cent in 40 years. We must not be content with what has been accomplished. We have far to go before our objective is gained. Sixty thousand lives a year even now are taken by the tubercle bacillus.

"The tuberculosis mortality dropped 33 and 32 per cent, respectively, in the last two decades."

Godfrey,⁶ in his recent discussion of the epidemiology of tuberculosis, states that although biologic balance has been turned against the tubercle bacillus, it is quite doubtful that the specific measures for its prevention have been, in the main, responsible. He believes that these specific measures can be made more effective in the further decline of the death rate, and that the time when tuberculosis will cease to be a major public health problem can probably be reduced by one-half. He stipulates the following requirements:

- (1) Ample provision of hospital beds;
- (2) reducing the economic difficulties which so frequently deter active open cases from entering a hospital;
- (3) provision for delinquent open cases;
- (4) better localization of the problems through better reportation of the disease;
- (5) more thorough investigation of household contacts in a search for sources of infection and segregation of open cases;
- (6) a careful consideration of the probable yield from any mass survey so as to avoid waste of time, effort, and money. For instance, the promiscuous tuberculin testing of school children does not yield many active cases, and should be condemned;
- (7) epidemiologic studies, and studies of death rates essential in evaluating control measures.

PUBLIC HEALTH MEASURES FOR THE CONTROL OF TUBERCULOSIS

Douglas⁷ has recently stressed the importance of the so-called five point program in tuberculosis control programs. These activities which are essential in the eradication of tuberculosis are listed as follows:

- I. Case finding.
- II. Isolation of active cases.
- III. Prompt and adequate treatment.
- IV. Follow-up and rehabilitation.
- V. Public health education.

I. *Case-finding.* The public health objectives in the control of tuberculosis revolve around the application of effective case-finding procedures in the search for minimal and open cases.⁸ Patients with minimal tuberculosis, of course, have a much better chance for cure than those in the advanced stage.

The so-called open cases, that is, those with open cavities and positive sputum, constitute the chief source as well as the chief spreader of the infection, and therefore have the greater public health significance. It is a matter of common knowledge that only 20 per cent of the admissions to sanatoria are in the minimal stage. In all probability, tuberculosis, as a major public health problem, could be reduced to a minor one if present methods and technics were more extensively employed.

Minimal tuberculosis is usually asymptomatic and ordinarily cannot be detected by physical examination alone. It is for this reason that case-finding programs should be carried out among apparently healthy groups. Aggressive case-finding programs now in effect in many parts of the country, have resulted in the discovery of a much larger percentage of minimal cases than heretofore.

There are certain population groups which yield a large number of new cases as a result of case-finding programs, and it is necessary to concentrate attention on these groups if the anti-tuberculosis campaign is to be effective. These groups may be listed as follows:

1. Known contacts of open cases.
2. Inhabitants of congested areas where the economic level is low and insanitary conditions are present (areas of high tuberculosis mortality).
3. Certain racial and national groups: Negroes, Mexicans, Chinese, Indians.

4. Certain occupational groups: Miners and stone-cutters exposed to silica dust; printers.

5. Undernourished young women who are pregnant (pregnancy tends to light up a tuberculous infection).

6. W. P. A. workers.

7. Age groups—infants succumb readily to tuberculosis when exposed to open cases; it is rare in children from five to 14 years, and it takes its greatest toll in the age group from 15 to 45 years.

The case-finding procedures generally employed today are as follows: (1) Tuberculin testing, x-ray survey; (2) fluoroscopy survey; (3) x-ray survey.

1. Tuberculin testing—x-ray surveys. The healing of the primary phase of tuberculosis is accompanied by a changed tissue reaction so that allergy develops or sensitization of the tissues to the protein fraction of the tubercle bacillus, and this can be demonstrated by a positive tuberculin reaction. It has been determined that it takes from three to seven weeks for a positive tuberculin reaction to appear following infection.⁹ It may be stated therefore that the tuberculin test plays the role of an indicator of tuberculous infection in case-finding programs and is used as a screen to separate those infected by the tubercle bacillus from those not as yet affected thusly. The program is not complete if it stops with the tuberculin test. All positive reactors should be subjected to the x-ray examination in order to determine if the infection is clinically active. Physical examination and laboratory work should be done on every known or suspected case in order to obtain the complete clinical picture.

In the past, several workers have observed the absence of tuberculin allergy in the presence of presumptive tuberculosis as evidenced by the presence of calcifications on the chest plates.¹⁰ Long¹¹ points out that these cases were examples of obsolete infection and an explanation of the waning of allergy is the fact that the tubercle bacilli lodged in the primary complex are no longer viable. Long¹¹ and Myers⁹ believe

that the tuberculin reaction remains positive as long as the tubercle bacilli are viable.

The tuberculin test therefore is generally used in surveys to determine the incidence of tuberculous infection among certain population groups and to reduce the number of x-rays to be taken, and, incidentally, the expense by eliminating those individuals who are not infected. A negative tuberculin reaction means absence of infection, and, in most instances, absence of clinical tuberculous disease. However, a small percentage of very minimal healed cases and cachectic far advanced cases may lose their allergy to tuberculo-protein and react negatively to the tuberculin test.¹²

At present there is a tendency for the roentgen ray to supplant the tuberculin test in case-finding, although tuberculin testing is still enthusiastically advocated by some workers.

Myers⁹ is of the opinion that the tuberculin test is still quite important. He points out that the presence of lesions too small to cast a shadow on the x-ray, and extrapulmonary primary lesions can be detected only by means of the tuberculin test. Furthermore, he cites the role of the tuberculin test in the eradication of tuberculosis in cattle as proof of its value. On the other hand, the disadvantages of tuberculin testing are as follows: (a) It is not 100 per cent accurate; (b) it requires two visits to the doctor, and four if the two-dose method is used. Through negligence, individuals may fail to return for a reading, and thus active cases may be missed.

Tice¹³ has recently reported the results of a case-finding program consisting of tuberculin tests, on 167,345 children with x-ray films of 27,401 tuberculin reactors. The total group examined included students from elementary and high schools chiefly, and a small percentage from colleges and trade schools. This survey yielded 586 new cases at an estimated cost of \$450.00 per patient. Tice concludes that case-finding limited to the school age groups is unproductive as well as expensive. He is of the opinion that the miniature x-ray film ranks first as a case-finding pro-

cedure, although tuberculin x-ray screen still has its place. The high cost of the regular 14x17 inch film prohibits its widespread use as a case-finding procedure without screening. Tuberculin testing will be useful in diagnosing tuberculosis in infants and very young children as well as in atypical chest conditions where the sputum is negative.

2. Fluoroscopy survey. Fluoroscopy without preliminary tuberculin testing as a case-finding procedure has been used in some clinics, but has not received widespread approval. It does have certain advantages which are as follows: (a) Cheapness; (b) simplicity.

However, there are also certain disadvantages in employing this procedure which overbalance its advantages, and these are: (a) Lack of accuracy in detecting minimal lesions; (b) it is a personal interpretation of the chest condition; (c) it does not afford a permanent record. (X-ray is a permanent record.)

Block¹⁴ and his associates advocate case-finding by means of the fluoroscope in outpatient clinics. They contend that "the clinic offers the opportunity to conduct a routine roentgenologic search of the populace without the necessity of solicitation."

3. X-ray survey. It is generally conceded by tuberculosis workers today that the most accurate and reliable case-finding tool is the x-ray, especially in the detection of minimal cases. Its advantages over tuberculin testing are as follows: (a) It requires one visit to the doctor; (b) it reveals non-tuberculous conditions such as cardiac enlargement, bronchiectasis, carcinoma, lung abscess, and the pneumonias.

In carrying out survey work it is necessary that the x-ray unit be mobile so that it may reach population groups in rural areas where chest clinics are not conducted.

The cost factor in x-ray surveys has been minimized by the development of the so-called miniature film. Potter,¹⁵ in collaboration with the General Electric Corporation, developed the 4x5 inch miniature film which is a photograph of the fluoroscopic image of the chest.

Douglas and Birkelo¹⁶ recently evaluated the miniature x-ray film and they came to the following conclusions: (1) The 4x5 inch miniature film is quite accurate; (only 2.6 per cent error in detecting 271 patients with active tuberculous lesions as found in the full size film taken of 1,610 persons); (2) it is economical and can be rapidly applied to large numbers for survey purposes, one per minute.

Dearing¹⁷ has recently reported on chest fluorography with portable x-ray equipment on 35 mm. film. He states, "A roentgenographic examination which costs no more than a tuberculin test would have the advantage of ready acceptance by the public, the administrative simplicity and economy to the individual of a single instead of two or three clinic visits, and would provide information about chest pathology in every case. Fluorography is the one procedure that gives promise of accomplishing this objective."

Over 1,000 persons were examined by Dearing with both the conventional and micro-films. He concludes from his experience that there is need for further development of technics and materials, but that fluorography with 35 mm. film and portable x-ray equipment offers promise as a practicable procedure for screening purposes and for large scale tuberculosis case-finding in rural areas at reasonable cost.

The equipment for taking 35 mm. films has been accepted by the Army, the Navy, and the Selective Service Boards. In reading these films, however, direct magnification with a lens is necessary.

The Louisiana State Department of Health¹⁸ expects to have one of these new 35 mm. fluorographic units mounted on a truck in the near future. X-ray surveys will then be carried out on large school groups, inmates of institutions, and industrial groups without preliminary tuberculin screening.

II. *Isolation of active cases.* It is necessary to isolate active cases in order to check the spread of the infection by removing the source (patients) from circulation. In this connection the question of sanatorium

versus home care arises, and it may be said without fear of contradiction that sanatorium care is the preferable regimen. The advantages of sanatorium care are as follows: (1) Proper medical and nursing facilities are readily available; (2) the patient is relieved of family worries while in the sanatorium; (3) education and hygienic measures for preventing the spread of the infection are afforded by the sanatorium; (4) collapse therapy is best initiated in the sanatorium. It is good public health practice to confine the patient in the sanatorium until cavities are closed and the sputum is negative so that he is no longer a menace to the public health.

The generally accepted standard for the provision of beds for the tuberculous is two beds per annual death. It might be wise to utilize idle beds in general hospitals for the temporary care of tuberculous patients in case of shortage of sanatorium beds.

If the patient cannot go to the sanatorium because of a shortage of available beds, as is often the case in Louisiana, then it is the province of the public health nurse to make regular home visits at least at monthly intervals for the purpose of instructing the patient and members of the family regarding the proper disposal of infected sputum, general hygienic measures, danger of intimate contact, as well as details of concurrent and terminal disinfection of the room and eating utensils. During these home visits, sputum specimens should be collected regularly from the patient and a check should be made on isolation.

III. *Prompt and adequate treatment.* Passing on to point three of the tuberculosis control program, it may be said that the modern treatment of pulmonary tuberculosis calls for the extensive employment of collapse therapy procedures in selected cases. All collapse therapy is aimed at putting the diseased part of the lung at complete rest so that healing may occur, thus rendering the patient non-infectious. Artificial pneumothorax is the most widely used of all procedures, and requires the simplest technic. It may also be con-

sidered the most valuable public health measure in checking the spread of the infection, and for this reason should be more extensively employed.

In artificial pneumothorax, air is introduced into the pleural space between the lung surface and chest wall at regular weekly intervals; oftener after the initial injection, in order to collapse the diseased portion of the lung and to keep it collapsed until cavities are closed and healing has been accomplished. Artificial pneumothorax is best started in the sanatorium, but after a satisfactory collapse has been obtained, refills may be given by an ambulatory pneumothorax clinic or the outpatient department of the sanatorium. Ambulatory pneumothorax clinics are of value in rural areas where sanatoria and men trained in pneumothorax therapy are not available.

Artificial pneumothorax has its most valuable indication in moderately and far advanced cases, especially those with an open cavity and positive sputum. Pneumothorax may be unilateral or bilateral.

Although the technic of artificial pneumothorax is quite simple, there are certain important complications which may occur and these require treatment. They may be enumerated as follows: (1) Pleural effusion; (2) spontaneous pneumothorax; (3) air embolism; (4) pleural shock.

The ultimate objectives of artificial pneumothorax may be listed as follows: (1) Closure of cavities; (2) elimination of positive sputum; (3) control of symptoms; (4) arrest of both pulmonary and pleural disease; (5) restoration of patient's working ability.

IV. *Follow-up and rehabilitation.* This step in the tuberculosis control program is quite important and has been neglected to a considerable degree in the past. In locations where there are tuberculosis sanatoria, the outpatient department provides for adequate follow-up. In other localities it is the province of the health department to carry on this activity. This group may yield a large number of spreaders of the infection if adequate medical follow-up is not provided.

It is very important that the tuberculous patient be able to take his place in the community and to earn his own living after he has completed his cure. The National Tuberculosis Association is now making a study of the problem of rehabilitation for ex-patients and it is hoped that some suitable arrangement can be made in the future for their employment. Occupational therapy during convalescence will help a great deal in preparing ex-patients for the task of earning a livelihood.

V. *Public health education.* The final point in the tuberculosis control program, namely, public health education, is indispensable for its successful administration. The methods in general use are: (1) Visual education (by means of moving pictures); (2) lectures before civic and service groups, Parent-Teacher Associations, high school and college students; (3) distribution of popular literature to these groups.

In order to create an awareness of the existence of this major public health problem, it is necessary to keep the public informed on the general subject of tuberculosis control in order to obtain its endorsement and support. The local situation should be emphasized in this educational campaign. In other words, it is necessary to sell the tuberculosis control program to the public in order to obtain necessary financial support for carrying it through.

THE TUBERCULOSIS PROBLEM IN LOUISIANA¹⁹

The following is a summary of the facts regarding the tuberculosis problem in Louisiana as recently formulated at the conference on tuberculosis, New Orleans, Louisiana, October, 1940, under the headings of:

I. Situation.

II. Cause.

III. Remedy.

I. *The situation:* Louisiana's tuberculosis death rate is more than 50 per cent higher than the average for the United States.

II. *The cause:*

(1) Louisiana has never provided adequate care for its tuberculosis citizens.

There is less than one bed per death; the standard is two beds to every death.

(2) As a result, infectious cases of tuberculosis are mingling with the population at large, and spreading tuberculosis to their contacts in the family and community.

(3) Louisiana has never provided adequate relief for the families of tuberculous patients. It is impossible to keep the head of the family in a hospital unless adequate financial provision is made for the family.

(4) Because of lack of beds, no systematic case-finding campaign has ever been conducted in the State. Early cases are allowed to become advanced cases and to infect other persons before they are hospitalized.

III. *The remedy:*

(1) Additional beds for tuberculosis should be provided throughout the State immediately; funds must come from taxation provided for by legislative appropriation. At the present time the tuberculosis control campaign is being conducted throughout the State of Louisiana to secure additional beds for tuberculous patients. Louisiana today has about one-fourth of the total number of beds required for this State.

(2) Until additional beds are provided, the tuberculosis death rate will continue to be conspicuously and dangerously high.

SUMMARY

1. The tuberculosis mortality rate for the United States has gradually declined during the past two decades so that this disease now ranks seventh or eighth as a cause of death. It used to be the leading cause of death.

2. Louisiana has not kept pace with the progress made by many other states in the control of tuberculosis.

3. The public health measures in general use for the control of tuberculosis are as follows:

- (a) Case-finding.
- (b) Isolation of active cases.
- (c) Prompt and adequate treatment.
- (d) Follow-up and rehabilitation.
- (e) Public health education.

4. A summary of the facts regarding the tuberculosis problem in Louisiana is

presented. There is an acute shortage of beds for the tuberculous patients of Louisiana.

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GALLBLADDER DISEASE*

IMPORTANT CLINICAL CONSIDERATIONS

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BALTIMORE

Cholecystitis and cholelithiasis are indisputably among the most frequent abdominal diseases; so I have elected to lay before you some clinical facts and ideas which may prove helpful in the evaluation of abdominal symptomatology in relation to gallbladder disease.

ETIOLOGY

Diagnosis of this condition is greatly facilitated by recalling that it is found two to five times oftener in females than in males, and that pregnancy is frequently a definite factor. I am convinced that obesity, lack of active exercise, sedentary habits and constipation play important roles in the etiology of gallbladder disease, particularly in those of advancing years.

Disturbances of cholesterol metabolism, infection, and factors toxic, mechanical and chemical also figure largely in the initiation of primary pathologic changes in the gallbladder.

From the standpoints of diagnosis and therapy it is well to realize that the infecting organisms are found oftener in the wall of the gallbladder than in the bile; a mild controversy still exists as to which organism is the chief offender; some claim the colon bacillus as the most frequent, others maintain the supremacy of the streptococcus.

In recent years, various authors have considered disturbances of cholesterol metabolism an important factor in the inauguration and continuation of gallbladder disease; they have asserted that certain types of gallbladder disease may be entirely of metabolic origin. Potter⁶ is committed to the opinion that motor disturbance and cholesterol disorders are more likely to be factors in cholecystic disease in pregnant women than are infection and mechanical disturbances.

The rapidity with which gall stones are formed is an interesting question; many authorities believe that in most cases a group of stones of the same crop may develop within a few months. Mentzer⁵ cites a very interesting case in which a soft stone was found in a gallbladder a few days after two stones had been removed at operation.

Some observers doubt that bacteria are ever the primary cause of stone formation,

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rather leaning toward the belief that the formation of stones of varying types may be due to physical phenomena in relation to local or general metabolic disturbances or imbalances. I am definitely of the opinion, however, that bacteria do play either a primary or a secondary role in gallbladder disease.

Walters and Snell¹⁰ state that despite the fact that practically all primary malignancies of the gallbladder are associated with stones, the mortality from the removal of stones, although very small, is nevertheless greater than the frequency of primary malignant neoplasms.

Close study of these cases will yield the surprising discovery that gallbladder disease is often accompanied by duodenal ulcer, and not infrequently by chronic appendicitis; furthermore, possibly due to ascending infection, chronic changes in the liver may occur. Because of these established facts one may well question the effect of reflex action in relation to infection and metabolic changes.

The close relation between disturbances of the liver, gallbladder, and their passages, and the stomach and duodenum, is easily explained; there is an intimate embryologic connection between these organs anatomically, physiologically and pathologically.

It has been suggested that changes in the stomach and duodenum caused by reflexes emanating from a diseased appendix may in turn disturb the function-mechanism of the liver-gallbladder area, thereby interfering with secretion, storage and outflow of bile, and conceivably leading to stone formation and infection. Thus the importance of correlating diseases of the gallbladder with disturbed conditions in the liver, stomach, duodenum, pancreas, appendix, and large intestine, is readily realized.

One must never forget that while gallbladder disease is not hereditary, it does occur in a high percentage throughout some families, particularly those harboring obesity, arteriosclerosis, migraine and diabetes.

Another vital fact is that the gallbladder and its mucosa possess the power of re-

cuperation in high degree; pathologists state that even after successive attacks the only evidence of disease may be pericholecystic adhesions. I am convinced that acute, infectious, catarrhal cholecystitis frequently masquerades as mild or moderately severe functional dyspepsia, misinterpreted as secondary to dietetic indiscretions or to tension and strain after physical or nervous fatigue; this mistake is due to the fact that even if stones are present the attack is likely to be mild unless the cystic duct is occluded. In such cases, if I obtain a history of pain of a continuous aching character even though quite mild, tending toward radiation and projection to the back and to the lower angle of the right scapula, then I feel justified in suspecting the gallbladder as the offending organ.

I am particularly anxious to emphasize that pain, chills, fever, leukocytosis and even jaundice, may be present in cholecystitis, hepatitis and cholangitis; such symptoms and diseased states may and do exist in the absence of stones, and yet the process may eventuate in suppuration and even perforation.

Walters and Snell¹⁰ direct attention to a septicemic variety of acute cholecystitis, and believe that this represents one of the most severe and fulminating types; they stress the fact that this condition is at times associated with subacute and bacterial endocarditis. It would seem wise in such cases to obtain a blood-culture.

In all gallbladder cases we should continue, as in the past, to search for a history of typhoid fever, since it has been definitely proved that typhoid bacilli may be dormant in the gallbladder for many years and then in some occult manner set up an acute suppuration.

Occasionally one will witness a very sudden and severe attack of acute cholecystitis with stones, wherein it is impossible to obtain a history of previous disturbances in any way tending to incriminate the gallbladder as the offending factor; because of this, the physician is often completely baffled and unable to satisfy himself that the gallbladder is the organ at fault; this

failure to recognize the true cause of symptoms all too often leads to serious results.

QUESTION OF OPERATION

I long ago reversed my former attitude of complacency toward acute cholecystitis, since experience taught me that many cases, treated medically, proceed rather rapidly to suppuration, a state of empyema and finally perforation. I think one is perhaps justified in saying that empyema is the commonest lesion seen at operation for acute cholecystitis. In these cases a high leukocyte count with a large percentage of polymorphonuclears is the rule, and should prove of decided diagnostic aid. Gangrene of the gallbladder is caused by organisms of a very virulent type and is practically always precipitated by a stone occluding the cystic duct.

Opinion in regard to operative procedure in acute gallbladder disease has undergone a radical change during the past few years, and most authorities have abandoned the "cooling off" period, and urgently recommend prompt operation. Division of opinion is concerned with immediate or early operation as opposed to late surgical interference. Stone and Owings⁸ advise prompt operation, considering that such action saves time, pain, expense and danger.

Smith⁷ thinks patients with acute cholecystitis should not be operated on immediately upon hospitalization without an urgent indication; however, younger patients in good condition may be operated upon after a day or two of preparation, without waiting for the attack to subside. In poorer risks, if the course under observation is satisfactory, it is wiser to allow the acute attack to "cool off."

Judd and Phillips⁴ assert that the present tendency is to carry out surgical treatment early in cases of acute cholecystic disease. They subscribe to the plan of early operation in acute cholecystic disease, yet feel that there are certain instances when surgical treatment should be postponed.

Walters⁹ believes that if the patient is seen in the early stages of the attack, operation can be carried out with safety. On the other hand, if the patient is not seen

until the second or third day of the attack, and infection then appears to be subsiding, he has sometimes found it advantageous to delay operation for one or more days.

There is a group of patients for whom cholecystostomy is indicated, that is, the obese or elderly in poor condition. Certainly no one would feel that a well-nigh inaccessible, acutely inflamed organ should be removed from an extremely sick person.

Cave¹ concludes that the majority of surgeons are obtaining better results by waiting from one to five days before operating on patients suffering with acute cholecystitis. Time is thus given for the acute inflammatory process to subside, and the patient is offered the opportunity to be properly prepared for the shock of a major surgical procedure.

Eliason and North,³ however, express the opinion that early surgical measures in the acute attack as well as in the course of the disease will reduce mortality and morbidity.

While I am unhesitatingly in favor of early operation, individualization should be the watchword, and every patient treated as a law unto himself, demanding intense study and a judicial attitude.

Let me here emphasize a point which merits earnest consideration; that is, the involvement of neighboring organs when acute inflammation of the gallbladder occurs. Should the pain shift to the left upper quadrant or extend to the lumbar region, suspicion should at once be directed toward the pancreas; furthermore, if shock and rigidity of the abdomen appear, one should strongly suspect the onset of hemorrhagic pancreatitis with an accompanying fat necrosis; involvement of the liver is also a constant latent possibility.

DIFFERENTIAL DIAGNOSIS

I can mention only briefly several important disease entities which should always be envisaged when symptoms of acute gallbladder disease are presented: (1) Active pylonephritis or hydronephrosis; (2) peptic ulcer; (3) appendicitis; (4) liver disease—including hepatic syphilis; (5) coronary occlusion.

In regard to cholecystography, now established as a most valuable adjunct in the diagnosis of gallbladder disease, I urgently advise against depending upon this method as a "court of last resort" in the diagnosis of gallbladder disease. It must be remembered that the procedure is by no means infallible, as proved by the statement of Kirklín that in from 8 to 10 per cent of normal response the gallbladder is nevertheless diseased. When all signs and symptoms point to gallbladder disease, although cholecystographic findings do not bear them out, I prefer rather to be guided by clinical experience and medical intuition than by mechanical procedure.

A word of warning as to prognosis in such patients with indefinite dyspepsia who are subjected to exploratory laparotomy with removal of a suspicious, non-calculous gallbladder; my experience in such instances has been anything but satisfactory, the morbidity being excessive and results usually most discouraging. Hence my adjuration not to offer the patient too much in the way of optimistic promises.

Let us consider briefly a few of the outstanding symptoms indicative of non-calculous and calculous forms of gallbladder disease. One or both of these conditions may masquerade in the form of a peptic ulcer syndrome; some authorities have placed the estimate as high as 25 per cent, and here a difficult situation is encountered because peptic ulcer and gall stones frequently coexist.

In gallbladder disease the symptoms are usually less clean-cut than in peptic ulcer, and not nearly so constant and regular. There is much flatulent dyspepsia and bloating, with epigastric discomfort and aching after meals, sometimes temporarily relieved by belching; the type of pain is extremely variable, and frequently constant in the right upper quadrant; it is often aggravated by the intake of food and by jarring or jolting.

If there is an accompanying infection of the bile passages, fever may be present, and not infrequently slight transient jaundice may be noted even in non-calculous cases.

General symptoms such as exhaustion and fatigability, with attacks of vertigo and migraine type of headache are not infrequent. Bouts of diarrhea are at times noted, and pericholecystic adhesions may disturb the pyloric-duodenal mechanism, thus interfering with the motor function of the stomach; this may in turn produce bizarre and puzzling symptoms.

Physical findings, especially in the non-calculous type, are in many instances of little or no consequence, though soreness and tenderness in the gallbladder area are sometimes present, and it is often possible to palpate a distended gallbladder as well as a swollen liver.

A possibility which should always receive consideration is stasis gallbladder, wherein there has been an interference with evacuation of this organ, often causing pain, colic, dyspepsia and other symptoms of organic cholecystic disease of severe degree. While it has been proved that in these cases there may be little visible evidence of either infection or cholesterosis, yet removal of the gallbladder will in most instances relieve the symptoms. Snell states that there are two explanations for this phenomenon: (1) That associated hepatitis and cholangitis are responsible for the symptoms,—an hypothesis which certainly does not apply in all cases; (2) that the symptoms may be produced by abnormalities of evacuation of the gallbladder, such as stasis or contraction against a spastic sphincter, with secondary or reflex disturbances in the digestive tract. On the other hand, according to Ivy, the functional causes of stasis are: (1) Duodenal irritation and inflammation; (2) reversed duodenal peristalsis; (3) spasm of the sphincter of the choledochus attributable to reflex motor disturbances or inflammation of the ampulla of Vater; (4) motor inactivity of the gallbladder owing to an inadequate diet with deficiency in the intake of meat, fat and fruit juices; (5) an abnormally small cystic duct; and (6) the presence of a sphincter in the cystic duct.

On the other hand, some authorities claim that definite gallbladder syndrome is produced by atony of the gallbladder. In such

a condition, however, it is rather difficult to understand the underlying mechanism in the production of pain.

The diagnosis of cholelithiasis and cholecystitis is not nearly so simple as would appear at first glance. Many people are found who harbor stones who apparently have never suffered from the presence of the stones. It must never be forgotten, however, that the effects of stones may be infective and mechanical, and if the condition is allowed to proceed there may ensue subacute and chronic cholecystitis, with progressive destruction of the mucous membrane, thickening and fibrosis of the wall of the gallbladder, and pericholecystitis. The possibility of infection of the wall of the gallbladder and its fluid contents in the presence of obstruction of the cystic duct must be carefully considered, for in these cases acute and chronic empyema are often the end results, and we may all too frequently find an associated hepatitis and cholangitis.

From a mechanical standpoint, stones may produce ulceration of the mucous membrane, ultimately leading in some instances to profuse bleeding.

SYMPTOMS OF CHOLELITHIASIS

The symptoms and signs of cholelithiasis are legion, and I shall present only a few of the more important. In correlating them one is aided by recalling Rolleston's classification, which is: (1) The masked or inaugural symptoms; (2) biliary colic; (3) mechanical effects; (4) inflammatory and infective sequelae; and (5) fistulas connecting the gallbladder with other organs.

In general we know that these cases are characterized by persistent and severe dyspepsia of the gaseous type, accompanied by fullness, distress, belching, vague nausea and flatulence greatly aggravated by coarse, fatty types of food. Syndromes distinctly indicative of ulcer are often encountered, and it must be remembered that not infrequently peptic ulcer and gall stones coexist. Outbreaks of diarrhea are often noted. Because of pericholecystic adhesions there may be an involvement of the duodenum and pylorus, thus eventuating in me-

chanical difficulty in the emptying of the stomach.

My suspicion of gallbladder disease is always aroused in patients presenting a dull, constant pain in the region of the gallbladder; also it is important to realize that pain from this source may be encountered in the region of the lower ribs posteriorly and has been mistaken for lumbago. Jolting and pressure aggravate pain on occasions, and often the patients will protest the wearing of tight articles of clothing.

I must emphasize that colic is not always indicative of the presence of stones, though nocturnal seizures are quite characteristic of biliary colic.

I think it vastly important to recognize the fact that pain which lasts for several hours or days may be taken to indicate the development of an inflammatory process in the gallbladder or an impaction of stone in the cystic duct.

One should be eternally vigilant to note any symptoms or signs which may be indicative of the beginning of a suppurative process, empyema or gangrene; those signs which are at times ominous consist of fever, leukocytosis, and a rapid erythrocytic sedimentation time.

It has been my experience that a possible injury to the pancreas is not considered, as it should be, in every case, especially when there is a stone in the ampulla. In these cases acute suppurative or hemorrhagic pancreatitis with fat necrosis may occur, though most often the ultimate result is a chronic pancreatitis with local induration and edema.

The diagnosis of pancreatic involvement due to the mechanical effects of stone is not an easy one. Violent, agonizing pain with shock; prostration, high fever, and leukocytosis accompanied by abdominal rigidity should definitely direct one's attention to the possibility of acute pancreatic necrosis.

During the past few years various observers have been impressed with the value of the blood amylase test as a dependable procedure in the diagnosis of acute pancreatitis. There is an increase in blood amylase only in acute pancreatitis; the level

risers to 150 from its normal 90, in a very few hours, and may reach 1000 after one or two days. It has been asserted that urinary diastase has equal diagnostic value with blood amylase. On the other hand there are no pathognomonic symptoms indicative of chronic pancreatitis.

COMPLICATIONS

As to the possibility of intestinal obstruction by gall stones, the most likely points are the small intestine at the lower end of the ileum just above the ileocecal valve, and duodenum, and any areas in the large bowel which may be bound down or angulated by adhesions. There are no characteristic signs indicative of this type of obstruction, and the condition is quite rare, though eliciting a previous history of biliary colic or other evidence of acute cholecystic disease should arouse suspicions of this possibility.

The possible presence of biliary fistulas, internal and external, should be borne in mind, for gall stones have been known to migrate to the renal pelves, the urinary bladder, the bronchi, the pleural cavities, the pregnant uterus and even the ovarian cysts. The types most commonly encountered, however, are cholecystocolonic and cholecystoduodenal fistulas which may be revealed only at operation or autopsy.

According to Wangenstein,¹¹ protracted external biliary drainage may bring about interference with digestion of fat, and the loss of minerals and of fat-soluble vitamins, thus ultimately interfering with nutrition. Studies by Greaves and Schmidt tend to prove that the absorption of vitamins B, E and D is deficient or absent when bile does not reach the intestinal tract, a point of great importance in treatment. These investigators have also called attention to the fact that substances necessary for the coagulation of the blood and for the formation of prothrombin similarly require bile for their absorption. In the presence of a complete external biliary fistula a fatal hemorrhagic diathesis may develop after attempted surgical repair; this situation is quite obviously attributable to lack of absorption of fat-soluble materials (vitamin K) from the intestinal tract.

I urgently advise that at the time of taking cholecystograms, roentgenograms also be made of the kidneys, ureters and urinary bladder; there is no gainsaying the fact that renal stones often inaugurate attacks exactly counterfeiting outbreaks of biliary colic; we must also remember that gall stones and renal stones are at times present in the same individual. Another condition which may lead one astray is diaphragmatic hernia, since this condition may also masquerade as biliary colic. Of vital importance in all cases is the thoughtful consideration of angina or coronary occlusion, which often simulate acute or subacute cholecystitis. Other conditions which should receive consideration are hepatic syphilis, amebic hepatitis, and cirrhosis; it is remarkable how frequently the diagnosis of cholelithiasis has been made in cases of cirrhosis. In not a few instances crises of plumbism and tabes doralis have been mistaken for biliary colic; still other disease entities to be pondered are hemolytic icterus, lesions of the appendix and cecum, gastrointestinal allergy, herpes zoster, root-pain of tumors of the spinal cord or of Pott's disease; aneurysm of the descending aorta, and various types of pleurisy, especially the pyogenic or tuberculous. It is interesting to note that cholecystitis with stones seems to develop with more than ordinary frequency among patients afflicted with diabetes.

SUMMARY

From what has been said, it is obvious that we should be more gallbladder conscious, especially as various authorities place the incidence of gall stones in adults at from 5 to 20 per cent. Mentzer⁵ reported, in relation to 633 postmortem examinations performed at the Mayo Clinic, that the gallbladders of 21.7 per cent of adults contained stones; and Crump,² in a series of 1000 postmortem examinations, found stones in the biliary tract in 32.5 per cent; after the seventh decade of life the incidence was 50 per cent. All authorities agree that cholelithiasis is found two to five times more often in women than in men.

Stone in the common duct, and many other phases of gallbladder disease remain

to be considered; but since time forbids further discussion, I shall trust that at least a few interesting and diagnostically important facts not generally known or considered have been clearly presented, and that this knowledge will on future occasions prove of some significance to my auditors.

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DISCUSSION

Dr. J. E. Knighton (Shreveport): Dr. Gaither, in his characteristic manner, has so completely and thoroughly presented every phase of this subject that very little remains to be said except perhaps to emphasize a few of the points which he discussed.

Regarding differential diagnosis, it is a well known fact that a gall stone attack frequently presents a clinical picture which very strongly resembles that of coronary occlusion or angina pectoris.

I am reminded of a case that I had the privilege of seeing through the courtesy of a doctor friend, who had made a tentative diagnosis of angina pectoris. Physical examination disclosed the fact that there was well defined tenderness to deep pressure in the right subcostal region. This gave

me the impression that we were dealing with gall stones. This impression was justified by a subsequent attack which was associated with jaundice. Operation revealed a gallbladder filled with stones, and patient made a good recovery, and there were never any recurrent symptoms suggestive of angina pectoris.

With reference to the gangrenous gallbladder with rupture, I can recall several cases in which numerous gall stones together with pus, mucus, and altered bile were found in the peritoneal cavity at operation with no apparent effort on the part of nature to circumscribe this foreign material by adhesions. Very much to my surprise, all these patients recovered.

Dr. Gaither referred to gallbladder infections following typhoid fever. I recall very distinctly having seen a patient years ago who gave a history of numerous gall stone attacks that were preceded by typhoid fever fifteen years previously. This patient was operated upon and cultures from the gallbladder contents revealed typhoid bacilli.

Reference has been made to pancreatic pathology following gallbladder infections. I have had occasion in numerous instances to demonstrate the absence of pancreatic ferments in the duodenal contents of patients who had suffered from common duct obstruction.

Dr. Ernest H. Gaither (in closing): I want to emphasize one point, and that is in regard to handling cautiously a case of acute cholecystitis. As stated, I have reversed my attitude of complacency when dealing with acute gallbladder disease.

In acute cholecystitis, I have two or three differential and leukocyte counts made during the day, and watch the temperature every two hours, and when possible, have special nurses; in ward cases I have them supervised with the greatest care. I am an advocate of early operation, and when I see a patient in the early stage, in the absence of toxicity and dehydration, I advocate surgical interference. However, if the patient has been ill for several days, and toxic manifestations are present, I prefer, if possible to wait for several days, during which time active measures are applied to overcome this untoward condition. In the acute case, there may be a quick flare-up and then a rapid reversal of all symptoms and after 24 or 48 hours another flare-up. In such cases quite frequently, much to your chagrin and embarrassment a gangrenous gallbladder or one that has ruptured is discovered.

AN ANALYSIS OF 220 CASES OF
ECLAMPSIA FROM CHARITY
HOSPITAL OF LOUISIANA
AT NEW ORLEANS*

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The 2,265,588 live births which occurred in the United States in 1938, the last year for which complete figures are available, were associated with 10,084 maternal deaths, 2,521 of which, approximately 25 per cent, were due to the toxemias of pregnancy. During the five-year period ending January 1, 1941, the 22,499 live births which occurred at Charity Hospital of Louisiana at New Orleans were associated with 168 maternal deaths, 0.007 per cent. During the same period approximately 2,500 cases of various toxemias of pregnancy were observed at Charity Hospital, of which 220 cases were instances of eclampsia.** The 220 cases of eclampsia were associated with 19 deaths, 8.6 per cent (table 1). Eclampsia thus accounted for approximately 8.8 per cent of all cases of toxemia of pregnancy observed at Charity Hospital during the period under discussion, and deaths due to eclampsia accounted for 11.3 per cent of all maternal deaths during this period. It is estimated that the general incidence of toxemia of pregnancy in the State of Louisiana is roughly 10 per cent.¹

One of the most significant aspects of

this analysis of eclampsia at the New Orleans Charity Hospital is the gradual decrease in incidence during the last five years, and the improvement in mortality over the same period. As table 1 shows, the incidence decreased from 1.18 per cent in 1936, the first year of the analysis, to 0.73 per cent in 1940, the last year, while the mortality decreased from 12.5 per cent in 1936 to 0 in 1940.

TABLE 1
INCIDENCE AND MORTALITY OF ECLAMPSIA AT
CHARITY HOSPITAL 1936-1940

Year	Deliveries	Eclampsia	Incidence in Per cent	Deaths	Mortality in Per cent
1936	4,040	48	1.18	6	12.5
1937	4,120	45	1.09	5	12.2
1938	3,902	48	1.23	4	0.83
1939	5,100	40	0.78	4	1.0
1940	5,337	39	0.73	0	0.00
Total	22,499	220	0.98	19	8.6

The cases of eclampsia were distributed fairly evenly throughout the year, although it is frequently stated that the incidence is seasonal. Sudden changes in barometric pressures may perhaps play some part in the causation of the condition, but we have at present no data on this point.

RACIAL DISTRIBUTION

Eclampsia has a disproportionate racial distribution at the New Orleans Charity Hospital. Seventy of the 220 cases occurred in white patients, 31.8 per cent, and 150 in negroes, 68.1 per cent, which is a ratio of roughly 1:2. During the same period, however, the ratio of white to negro deliveries was roughly 3:5 (8,403 white and 14,096 colored). The mortality in the white and negro cases is also somewhat disproportionate; 14 negro women died, 9.3 per cent, and five white women, 7 per cent. The negroes thus furnished slightly more than two-thirds of the total incidence and slightly less than three-quarters of the total mortality.

Few series in the literature offer any basis of comparison with the New Orleans figures from the racial standpoint. To physicians who handle negro patients, however, and who know their disregard of the ordinary laws of hygiene and the casual manner in which they accept their pregnancies, it is not surprising that the negro

*Read before the sixty-second annual meeting of the Louisiana State Medical Society, Shreveport, April 22, 1941.

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**The term eclampsia as used in this paper indicates convulsions due to a specific toxemia which occurs during the last months of pregnancy and is usually associated with hypertension, edema and albuminuria. Every patient in the series had one or more convulsions. Cases of convulsions due to nephritic toxemia are not included.

incidence of eclampsia as well as the negro mortality is higher than the white. On the other hand, in one respect, at least, the figures cannot be taken entirely at their face value, for white patients with eclampsia are treated in several other hospitals in the city and in smaller hospitals throughout the state, whereas with few exceptions negro patients from both city and country are treated at the New Orleans Charity Hospital.

DISTRIBUTION ACCORDING TO PARITY AND STAGE OF GESTATION

One hundred seventy patients were primiparae, 115 colored and 55 white, of whom eight died, 4.7 per cent. Fifty were multiparae, 32 colored and 18 white, of whom 11 died, 22 per cent. The high incidence of eclampsia in primiparae is in accord with the experiences of practically all obstetricians, while the disproportionately high mortality in multiparae is also what might be expected. The complications of pregnancy which occur after the first gestation are likely to be severe, and we are not alone in having a wholesome respect for their risks in the patient whom we have begun to describe as "the dangerous multipara."

One colored patient had had 10 previous pregnancies, and in four patients convulsive seizures had been present in other pregnancies. Some writers contend that eclampsia confers an immunity in future pregnancies, but most series, just as this one, show one or more instances of recurrence.

One hundred ninety patients were between the thirty-fifth and fortieth weeks of pregnancy when eclampsia developed, and the remainder were between the twenty-sixth and thirty-fifth weeks. Ten of the patients who died were within 10 days of term, and the other nine were between 10 and 30 days of term.

One hundred eighty-five patients, of whom 14, 7.6 per cent, died, had convulsions before labor. Twenty, of whom three, 15 per cent, died, had convulsions during labor. Fifteen, of whom two, 13.3 per cent, died, had convulsions after labor. In the

three fatal intrapartal cases the patients died undelivered. Eclampsia is most frequent before labor sets in, but it is very necessary, as these figures show, to watch patients with severe pre-eclampsia while they are in labor and during the immediate postpartal period, when added stress and strain are often enough to precipitate convulsions.

The declining incidence of eclampsia at the New Orleans Charity Hospital, as well as the uneven racial distribution and mortality, are very closely associated with the matter of adequate prenatal care. Though the cause of eclampsia is unknown, it is still possible to prevent its development in most instances by the proper supervision of the pregnant women throughout the period of gestation. Reduced to its essentials, adequate prenatal care may be defined as the early registration of the patient; constant and intelligent supervision throughout the period of gestation, with the object of detecting possible abnormalities in their earliest stages; and the immediate institution of necessary therapy when the earliest signs and symptoms of any abnormality are discovered. Such adequate care, it should be emphasized, implies not only the provision of care by the clinic and the physician but the cooperation in that care by the patient herself.

An examination from the standpoint of adequate prenatal care of the 220 cases of eclampsia observed at the New Orleans Charity Hospital during the last five years reveals certain interesting and significant facts. In not a single one of these cases was prenatal care, by the terms of our definition, in any sense adequate. In 200 cases, almost 90 per cent of the total, the patients had no care of any kind. In the remaining 20 cases such care as they had was entirely inadequate by modern obstetric standards.

In the specific toxemia of pregnancy, the earliest warning symptoms and signs are excessive, rapid gain in weight and rise in blood pressure, with or without albuminuria and edema. In every instance in this series subsequent questioning showed that the convulsions had been preceded by these

symptoms or signs, and that many of the patients had complained, in addition, of severe headache, sometimes associated with blindness, epigastric pain, nausea and vomiting, backache and dizziness. In other words, if prenatal care had been adequate, there seems little doubt that most if not all of these cases could have been detected and checked in their incipency.

In this connection, it is interesting and significant that during the past two years, not a single instance of eclampsia has occurred in the Charity Hospital outpatient clinics among pregnant women who have cooperated in the regimen of prenatal care outlined for them. Investigation of every instance of eclampsia which has occurred among the clinic patients has shown that the women in question either attended the dispensary irregularly or failed to carry out the instructions given them. In this respect, as has been pointed out, negro women are far more likely to be at fault than white women.

MORTALITY IN RELATION TO THERAPY AND MODE OF DELIVERY

The management of eclampsia involves three considerations: (1) Its prevention by adequate prenatal care; (2) the termination of the pregnancy, without regard to the stage of gestation, if pre-eclampsia cannot be controlled by adequate therapy; (3) if eclampsia has definitely set in, the control of convulsions by sedatives; methods to induce dehydration and diuresis, with the object of improving the patient's general condition; finally, delivery with as little trauma as possible, within an optimum time after convulsions have been controlled, with full regard to obstetric indications. All obstetric literature bears witness to the fact that the mortality of eclampsia began to improve almost as soon as accouchement forcé and other traumatic methods of delivery were eliminated and attention was shifted from the immediate termination of the pregnancy to the control of the convulsions and the general status of the patient.

The improvement in mortality in the last years of this study is a reflection of the

fact that the management of eclampsia at the New Orleans Charity Hospital, generally speaking, is now conservative. Spontaneous delivery occurred in 157 of the 220 patients, more than 71 per cent, but the break-down of these figures is interesting. During the last two years of the analysis 63 of the 79 patients observed, 78.4 per cent, delivered spontaneously, as compared with 94 of the 141 patients observed in the first three years, 66.6 per cent. The change is in accord with the observations that most eclamptics, if labor is induced by simple means and if no obstacles to normal delivery are present, will deliver spontaneously without further interference with physiologic processes.

It is evident from table 2 that the mortality in eclampsia is highest in patients delivered by traumatic methods. The three deaths which occurred in the 157 patients delivered spontaneously all occurred in women who were moribund on admission. As compared with this mortality of 1.8 per cent is the 21.6 per cent mortality (13) which occurred in the 52 patients delivered by various operative measures.* In all of these deaths, control of the eclampsia had not been fully accomplished when the traumatic procedure was undertaken. There is every reason, on the basis of these comparative results, for the shift to non-traumatic methods of delivery evident during the last years of this study.

On the other hand, these figures must not be misinterpreted. Even in eclamptic pa-

TABLE 2
MORTALITY IN 220 CASES OF ECLAMPSIA IN
RELATION TO METHODS OF DELIVERY

Methods of delivery	1936-1938			1939-1940		
	Cases	Deaths	Per cent	Cases	Deaths	Per cent
Spontaneous	94	2	2.1	63	1	1.6
*Forceps	14	2	13.6	5	1	20.0
**Section	9	1	11.1	7	0	0.0
Metreurytis	10	3	30.0	2	1	50.0
Version and extraction	8	4	50.0	2	1	50.0
Craniotomy	3	0	0.0	0	0	0.0
Undelivered	3	3	100.0	0	0	0.0
Totals	141	15	10.6	79	4	5.06

*18 low, 6 mid

**16 low, 4 classical

*The three women who died undelivered are omitted from these calculations.

tients delivery must be carried out according to established obstetric indications. Forceps should be applied and version and extraction should be performed when these procedures are indicated, and cesarean section should be undertaken when it is necessary. A certain latitude of indications is also wise. It is more conservative, for instance to deliver a primipara with a long, closed cervix and possible fetopelvic disproportion by low cervical cesarean section under local analgesia than to insert a bag and accomplish delivery later by version and extraction, for the former procedure is associated with far less trauma than the latter.

Failure to institute therapy promptly and to appreciate the optimum time for delivery definitely increases the mortality in eclampsia. In the fatal cases in this series treatment was instituted on an average of 10 hours after the onset of convulsions, as compared with three hours in the non-fatal cases.

Three patients died in coma, undelivered, a few hours after admission to the hospital. Six patients died within the first 24 hours after their admission, five between 24 and 48 hours, five between 48 and 72 hours, and the other three between 72 and 120 hours. These figures make it clear that a certain group of patients were moribund when they were first seen and could not have been saved by any method of treatment.

The majority of writers attribute the generally reported reduction in the mortality of eclampsia during the last few years to better methods of treatment. Peckham² introduces the speculation that eclampsia may actually be decreasing in severity, and cites the reduction in mortality at Johns Hopkins in recent years to prove this point, since the method of treatment has been the same there for the last 13 years. In our opinion, the explanation of the improvement at the New Orleans Charity Hospital is twofold: (1) With the reduction in the incidence of eclampsia due to better prenatal care, the potential mortality is reduced, that is, when fewer cases occur, the number of possible deaths is correspondingly

reduced; (2) the reduction in the actual mortality is due to improvements in methods of delivery, and particularly in the number of traumatic deliveries, associated with increasing attention to the status of the patient herself.

CAUSES OF DEATH

In 12 of the 19 fatal cases the cause of death was eclampsia *per se*. Four other patients died of pneumonia and the remaining three died of septicemia. The convulsions in the fatal cases ranged from one to 16, as compared with one to seven in the non-fatal cases, but it is questionable whether there was any relationship between the number of fits and the mortality. Seven patients went into fatal coma after only one convulsion. There was no apparent relationship between the albumin content of the urine and the mortality.

Coma was present in 12 of the fatal cases, but in only one of the non-fatal cases. All the patients who died exhibited pulmonary edema, as did 42 of the patients who lived. There is no doubt that both of these complications increase the mortality rate, particularly when they appear in the same patient, as happened in 13 instances in this series. Teel and Reid³ observed pulmonary edema in 56 per cent (26 of 46) of their fatal cases, and suggested that a frequent immediate cause of death in eclampsia is left ventricular failure.

TABLE 3
MORTALITY IN 220 CASES OF ECLAMPSIA IN
RELATION TO METHODS OF DELIVERY

Methods of delivery	1936 - 1940		
	Cases	Deaths	Per cent
Spontaneous	157	3	1.8
*Forceps	19	3	15.8
**Section	16	1	6.3
Metreuryis	12	4	32.5
Version and extraction	10	5	50.0
Craniotomy	3	0	0.0
Undelivered	3	3	100.0
Totals	220	19	8.6

*18 low, 6 mid

**16 low, 4 classical

In this connection, it is well to emphasize again the mortality which occurred in the puerperium in this small series, and to point out that the toxemic patient needs as intensive and as adequate care after delivery as before and during labor.

FETAL MORTALITY

Two hundred twenty-four infants were born of the 220 mothers in this series, there being four sets of twins. Twin birth is not unusual in eclampsia and seems to play some part, as yet entirely obscure, in its incidence. The gross fetal mortality was 92, 41 per cent; 48 children were stillborn and the remainder died soon after birth. The high fetal mortality is paralleled by the fetal mortality in other reported series and is evidence of the serious effect of the maternal toxemia upon the child *in utero*.

A recent improvement in the fetal mortality has been observed, in line with the improvement in the care of toxemic patients and the reduction in traumatic methods of delivery, and also in line with better methods of care of the premature infant. It should be emphasized, however, that the fetal mortality in eclampsia will always, of necessity be high, and that the mother's safety should never be jeopardized for the sake of an infant whose existence, because of the maternal disease, is always precarious.

SUMMARY AND CONCLUSIONS

1. An analysis of 220 cases of eclampsia from the New Orleans Charity Hospital showed a maternal mortality of 8.6 per cent and a fetal mortality of 41 per cent.

2. The incidence of eclampsia decreased and the mortality improved in the later years of the study, the improvement being due, respectively, to better prenatal care and better methods of delivery, associated with more attention to the status of the patient herself.

3. Both the negro incidence and the negro mortality were disproportionately high, which is to be attributed to the general disregard of prenatal care in this race.

4. The management of eclampsia involves three considerations: Prevention of the disease by adequate prenatal care; termination of the pregnancy, without regard to the stage of gestation, if pre-eclampsia

cannot be controlled; delivery with as little trauma as possible in frank eclampsia, after convulsions have been controlled and the patient has been brought to the best possible state.

5. The improvement in the mortality of eclampsia at Charity Hospital is associated with an increase in the number of spontaneous and a decrease in the number of traumatic deliveries.

6. Because of the effect of the maternal toxemia, the child's existence is always precarious, and the mother's safety should never be jeopardized for its sake.

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DISCUSSION

Dr. William F. Guerriero (New Orleans): I would like to clarify the statement concerning the number of cesarean sections performed. In no instance was cesarean section performed with eclampsia as an indication. Primarily, these sections were performed because of some associated pathology such as cephalopelvic disproportion. In all cases eclampsia was controlled and the patient placed in excellent condition before the undertaking of such a procedure. All sections in the last two years have been performed under local analgesia. We have attempted to stress the increase in mortality in cases of eclampsia terminated by traumatic means as against the lowered mortality in those which were terminated by some non-traumatic means. In most cases delivery can be accomplished from below spontaneously after some simple method of induction has been used, such as rupture of the membranes.

Nature is most kind in that in a large percentage of patients at term with eclampsia, labor begins in a few hours after the initial convulsions have occurred. In the early years of obstetrics, there occurred a surgical treatment of eclampsia in which the mortality was disturbing. In later years there was a swing to the ultra-conservative management of eclampsia in which the mortality improved somewhat, but not to the extent that one would be satisfied with it. At the present time there is the obstetrical management which includes, as has been mentioned, the adequate control of

convulsion, the placing of the patient in the best possible condition and then the terminating of the pregnancy in the least traumatic manner. It is by following the last manner of handling these cases that the mortality of eclampsia has been reduced to such an extent at Charity Hospital. The mortality will be further reduced, however, only when adequate prenatal care is afforded all patients to prevent eclampsia from occurring.

Dr. C. R. Mays (Shreveport): It is indeed gratifying to see the results that have been accomplished in the Charity Hospital in New Orleans; results which I was afraid would never be accomplished in that institution; results admittedly better than in our local Charity Hospital, and within the last year, results that I have never seen or hoped to see.

We think that the only safe uterus in the face of hypertension is an empty uterus. Our problem is not always to carry the patient with hypertension to term or viability but to prevent the development of eclampsia and permanent vascular damage. Though we cannot prove it, we feel that the latter sequel is quite likely to ensue if pregnancy is allowed to continue over a period of weeks or months in spite of persistent hypertension. We feel that this is particularly true if the individual case gives a family history of hypertension.

In reporting mortality statistics on eclamptic patients, I think they should be divided into two types, the mild and the severe. Mild eclampsia carries a very low mortality with any good judicious form of treatment. If, however, the eclamptic patient has a blood pressure over 200, a urine that boils solid, a pulse over 110, pyrexia, persistent coma and more than eight fits, the mortality is very high in spite of all that is or is not done.

I think it is quite interesting to note that in the series here reported, the death rate is higher in the multiparous group. I suppose the reason for this is that the multipara more often has pre-existing vascular or renal disease.

The decreasing death rate shown in this report is perhaps due to a number of things. The first, and certainly highly important, is improved care because of improved supervision and training of personnel and a general agreement by members of the staff to adhere to certain well founded procedures. Other factors contributing to the decrease in mortality in this report are, I believe, an increase in number of encountered eclamptics who developed the disease even after prenatal care, an increasing number of cases without the above criteria of severity and, last but not least, uniformly good medical and nursing care. Probably the judicious election of the most opportune time to induce labor after the patient begins to respond to sedation and hypertonic glucose is one of the very important factors in the success of this group.

In Shreveport Charity Hospital we regard bagging as a very hazardous and undesirable method

of inducing labor in eclamptics or any other patient. We feel certain that it has many disadvantages and no advantages whatever over simple rupture of the membranes. The infrequency of its use in New Orleans Charity Hospital and the results obtained therefrom indicate that the group there is at least in the process of adopting a similar attitude toward this method of induction of labor.

Dr. E. L. Zander (In closing): In regard to severe eclampsia, our point was to prevent patients from developing severe eclampsia. We believe it is wiser to interfere before, rather than later, when severe eclampsia has developed. The explanation for eclampsia in multiparae is the fact, as stated by Dr. Mays, that most cases are associated with hypertensive disease.

The eclampsias we have had were not patients who were referred to us through the clinic; none came in through the clinic. These patients were either admitted or patients who did not follow the clinic routine; they came in at the last minute and most were severe cases.

NURSERY DIARRHEA*

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AND

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NEW ORLEANS

For the past twelve years there have been reports from all over the United States, as well as occasional reports from abroad, of a sudden, devastating, newborn toxicopathy occurring in the nurseries of modern, well-equipped, widely separated hospitals. Many pediatricians are agreed that this is a newly recognized disease entity. Although the symptomatology is rapidly becoming broadcast, little is known of its etiology. These characteristics, as well as its lack of seasonal variation, are emphasized in table 1.

In a round table discussion of diarrhea and dysentery in the November, 1940, issue of the *Journal of Pediatrics*¹⁴ the diarrheal disorders of infants and children are classified as follows:

1. Infections of the gastrointestinal tract (*B. dysenteriae*, *B. typhosus*, *B. paratyphosus*, *Salmonella suipestifer*, amebae, and *Vibrio cholerae*).

2. Diarrheal disorders possibly due to

*Read before the sixty-second annual meeting of the Louisiana State Medical Society, Shreveport, April, 1941.

TABLE 1.
SUMMARY OF REPORTED CASES (13)

Hospital	Locality	Season	Mortality			Organisms Recovered
			Diarrhea	Deaths	Pet.	
The Cradle (1)	Chicago	1928	81	27	33	<i>S. morgani</i>
Michael Reese (2)	Chicago	Winter-Spring '30	34	14	41	<i>B. mucosa</i> , <i>Str. haemolyticus</i>
Sick Children (3)	Toronto, Ont.	Spring '33	15	9	60	<i>B. dispar</i>
Memphis General (4)	Memphis	Winter '33-'34			47	<i>B. coli mutabile</i>
(5)	Teaneck, N. J.	Winter '34	20	11	55	
Providence (6)	Seattle	Winter-Spring '35	23	14	61	<i>Monilia</i>
Lariboisiere (10)	Guiches, France	1935	5			Intermediary <i>B. dysenteriae</i> (Shiga-Flexner)
Royal Maternity (10)	Edinburgh, Scotland	'32-'35	41	11	27	<i>B. coli</i> , <i>B. pyocyaneus</i> , <i>Str. viridans</i>
(10)	Buffalo	1935	18	9	50	
N. Y. C. Hospitals (5, 11)	New York	July '34 to July '37	711	335	47	
Worcester Memorial (7)	Worcester, Mass.	Nov. '37	6	5	83	
Children's (8)	Denver	Aug.-Jan. '37	11	5	46	
Milwaukee (9)	Milwaukee	Sept. '38	39	18	44	<i>Str. haemolyticus</i>
St. Louis Co. (10)	Clayton, Mo.	Winter-Spring '38	26	11	42	<i>P. vulgaris</i>
U. of Pa. (11)	Philadelphia	1939	14	0	0	
(12)	Los Angeles	1940	11	4	36	
Touro Infirmary	New Orleans	Oct.-Nov. '40	12	9	75	<i>B. coli</i> , <i>B. aerogenes</i> , and <i>Str. fecalis</i>
Total number of cases reported			1067	474	44	

virus infections of the gastrointestinal tract or secondary to a general systemic virus infection.

3. Diarrheal disorders from ingestion of food contaminated with bacteria, or molds, in which, as a direct result of their growth in foods, true toxins are formed.

4. Diarrheas resulting from reduced digestive functions whether from parenteral infections, chilling of body, over-heating, or humidity.

5. Diarrheas from the ingestion of intestinal irritants.

6. Diarrheas from over-feeding.

7. Allergic diarrheas.

8. Nervous diarrheas.

9. Eliminative diarrheas seen in uremia and acidosis from the excretion of endogenous toxins in the intestines.

10. Starvation diarrheas.

11. Diarrhea from gastrointestinal bleeding.

It becomes increasingly apparent that the recent epidemic diarrheas are probably of the nature of classification 2. This belief is supported by both the inconclusive bacteriologic studies and the autopsy findings. The reported high incidence of "flu" in a community preceding an epidemic of infantile

diarrhea has been noted. The suggestion has been made that the infection occurs at the first stage of an epidemic of "flu". In the present report that was at least an incidental finding as there has been a considerable "flu" epidemic in Louisiana from November to the present time. Pathologically the findings are similar to those of fatal influenza or measles. Generally speaking, in diarrheal disorders, it may be difficult to determine whether the offending organism is enteric or extra-enteric. Felsen¹⁵ explains diarrheal manifestation by two different mechanisms, as follows: As the gastrointestinal tract of the newborn is sterile, the flora within the first few days is determined by food and ingested substances. Normally the intestinal tract adjusts to a varied bacterial flora without any noteworthy disturbances "unless some unusual toxin-producing organism succeeds in gaining a foothold. Bacteria do not pass through a healthy intestinal wall but toxins do." The absorbed toxins produce systemic effects. However, the focus of absorption may be entirely extra-enteric, and particularly in the respiratory tract. Regardless of the initial site of infection the toxins are carried in the blood stream to the intestinal

mucosa. Therefore, culture of the stools for a specific agent may be futile.

Frant and Abramson⁵ define the epidemiologic features of this syndrome in their New York studies. The disease is limited to infants of the neonatal period, that is, the first month of life. It does not spread to the older children or adults. Feeding is not important. It occurs in all seasons.

Rice, Best, and Frant¹⁶ have given a very good typical case history. One of the newborns, either breast or bottle fed, ceases to gain, vomits feeding, refuses feeding, or passes several loose yellow stools without blood. In several days, in spite of fluids, the patient becomes profoundly toxic and dehydrated. In spite of protein milk, breast milk, blood transfusion, and phlebotomy, the patient has only a 50 per cent chance of recovery. Otitis or bronchopneumonia may be a terminal complication.

In the epidemic of 12 cases of newborn toxicopathy which occurred at the Touro Infirmary in October, 1940, respiratory and other infections were prominent in the attendants and maternity cases on the wards at that time. Nose and throat cultures done on 28 doctors, nurses, and attendants for the obstetric floor proved nine positive cases of *Strep. hemolyticus*. One of these subjects had a bad cold, and two additional cases of head cold showed *Strep. non-hemolyticus*. All cultures were positive for staphylococci. Of 65 maternity admissions between October 15 and November 1, 22 had upper respiratory infection and 12 had pyelitis on

admission. In our cases, all but two of the mothers had some kind of infection, the average baby was borderline in weight, that is, 5½ pounds, and had some abnormal type of delivery, as is shown in table 2.

All but one baby had either skin or mouth lesions, that is, blebs, rash, thrush or nasal pharyngitis before diarrhea started. The onset of diarrhea was in the average case eight days postnatal, with an average of 5-16 watery greenish-yellow stools per day. One stool showed bloody mucus. Later the stools became putty-like in consistency. The course during this phase was not alarming as a rule. Vomiting and regurgitation of formula started soon after diarrhea, and grew more severe as the respiratory symptoms appeared. The vomitus was green to yellow, and in one case it was bloody and possibly arose from the lungs. Upper respiratory symptoms began on an average of six days after the onset of diarrhea, the infant's condition becoming rapidly worse thereafter. The symptoms are summarized in table 3.

The laboratory findings were not enlightening. No specific dysentery organisms were present in the stools, but *B. coli*, *B. aerogenes* and *Strep. fecalis* were the most frequently isolated. The blood counts were not particularly elevated during the first week of diarrhea but rose later in those cases noted. At the end of the series of cases x-ray findings indicated possible lung pathology. The gastrointestinal series in one case was non-contributory.

TABLE 2.

Case	Admission Maternal Infections	Birth Weight	Type of Delivery and Indication
1	Erysipelas	5 lb. 2½ oz.	Oct. 4, spontaneous premature
2*	Pharyngitis	5 lb. 4¼ oz.	Oct. 18, precipitate, twin
3*	Pharyngitis	5 lb. 13 oz.	Oct. 18, spontaneous, twin
4	Coryza	3 lb. 12 oz.	Oct. 20, laparotrachelotomy, toxemia of pregnancy
5†	Pyelitis and mod. diarr.	5 lb. 7 oz.	Oct. 20, laparotrachelotomy, dwarfism, twin
6†	Pyelitis and mod. diarr.	5 lb. 8½ oz.	Oct. 20, laparotrachelotomy, dwarfism, twin
7	Cold in hospital	6 lb. 13¼ oz.	Oct. 20, laparotrachelotomy, contracted pelvis
8	Cough and nasal disc.	7 lb. 2½ oz.	Oct. 20, low forceps and episiotomy
9	Pharyngitis and pyelitis	6 lb. 4 oz.	Oct. 22, laparotrachelotomy, previous section
10	None	6 lb. 5½ oz.	Oct. 24, laparotrachelotomy, funnel pelvis
11	Pharyngitis and sinusitis	5 lb. 14 oz.	Oct. 27, laparotrachelotomy, placenta praevia
12	None	6 lb. 9 oz.	Nov. 2, low forceps and episiotomy

*Cases 2 and 3 are twins.

†Cases 5 and 6 are twins.

TABLE 3.

Case	Date of First Symptom	Stool	Vomitus	Respiration
1	Oct. 8: blebs; Oct. 14: green, watery stool	Oct. 12-21: watery green to yellow pasty	Oct. 14: formula; Oct. 16: green; Oct. 21: distention	Oct. 20: coryza; Oct. 21: labored
2*	Oct. 27 or 28: green, watery stool and vomiting of formula	9 watery green to pasty yellow per day	Occasional; Nov. 3: continuous with distention	After Oct. 31: rate 32-40; Nov. 3: dyspnea and bloody fluid in trachea
3*	Same as case 2	About 5 per day of similar character as case 2	Practically none; tan fluid on lavage for distention	After Oct. 31: rate 32-40; Nov. 2: cyanotic
4	Oct. 27: green-brown stool, diarrhea	5-9 greenish watery stools per day	Oct. 31: green fluid p. c.; Nov. 7: bright red	Nov. 7: cyanosed
5†	Oct. 27: thrush (?); Oct. 29: green, watery stool	Oct. 29: green, watery, liquid yellow and foul, almost continuous	Nov. 4: 6 times; Nov. 8: thick yellow fluid in mouth	Nov. 9: mucus, cyanosis, dyspnea
6†	Same as case 5	Same as case 5	Nov. 3: occasional p. c. regurgitation; Nov. 7: thick yellow fluid in stomach	Same as case 5
7	Oct. 21: blebs; Nov. 4: diarrhea & p. c. vomiting	Nov. 4-9: 6-10 loose yellow-green per day	Nov. 4: p. c.; Nov. 9-10: green fluid	Nov. 9: mucus, cyanosed
8	Oct. 24: blebs; Oct. 25: 5 green stools, 6 vomitings	Oct. 25-26: 6 green stools per day	Nov. 25, 26: 6 times p. c.	
9	Oct. 24: hlebs; Oct. 29: watery green stools	After Oct. 29: 5-9 loose yellow-green	Oct. 29: green fluid, distention	Nov. 4: cyanotic
10	Oct. 29: liquid green stool, also on Nov. 9	Nov. 9-12: 5 loose yellow-green; Nov. 10: mucus	Nov. 9: formula; Nov. 13: distention	Nov. 11-13: rate 52-60
11	Nov. 4: watery green diarrhea	Nov. 4-7: 12-16 watery green to foul soft yellow	Nov. 6: distention; Nov. 8-12: green fluid	Nov. 9-15: mouth and pharynx scarlet, gagging
12	Nov. 6: thick green fluid with blood and mucus	Nov. 6-12: 9 dark green bloody mucus to creamy yellow foul per day	Nov. 7: green fluid; Nov. 11-12: yellow fluid	Nov. 6-7: cyanotic; Nov. 14-15: rate 30-32

*Cases 2 and 3 are twins.

†Cases 5 and 6 are twins.

TABLE 4.
Laboratory Reports

Case	Laboratory Reports
1	None.
2	Oct. 30: R. B. C. 5.0; W. B. C. 7,500; hb. 100%; polys 50%; Wass. neg.
3	Oct. 30: R. B. C. 5.0; W. B. C. 11,000; hb. 100%; polys 60%.
4	Nov. 5: stool culture neg. for pathogens.
5	Nov. 6: stool culture neg. for pathogens.
6	Nov. 5: stool culture neg. for pathogens.
7	Nov. Oct.: bleeding time 1 min., coag. time 2 min.; stool culture neg. for pathogens.
8	None.
9	None.
10	Oct. 19: Wass. neg.; Nov. 11: R. B. C. 5.0; W. B. C. 9,100; hb. 100%; polys 72%; Nov. 13: R. B. C. 5.03; W. B. C. 15,500; hb. 110%; stool culture neg. for pathogens; Oct. 24: x-ray shows atelectasis; Nov. 9: x-ray suggestive pneumonic consolidation.
11	Nov. 5: Wass. neg.; Nov. 7: stool culture neg. for pathogens; Nov. 9: x-ray showed increased lung markings; Nov. 12: G-I series and chest neg.
12	Nov. 9: stool culture neg. for pathogens; Nov. 12: x-ray showed increased right lung markings; Nov. 13: R. B. C. 4.0; W. B. C. 22,000; hb. 110%.

Treatment throughout was varied and more or less symptomatic. Only cases 10, 11 and 12 survived. These three cases were the last affected. Two of these cases, 10 and 12, were treated with sulfapyridine but we do not believe that the use of this drug contributed much to the recovery of the patient. One of these patients had a rectal temperature of less than 101° which showed

no appreciable change for several days after the administration of the drug and the other patient had no fever and gradually got well. The diet before illness and the subsequent treatment is outlined for each case in table 5.

CONTROL

1. As soon as the outbreak became recognized as of epidemic nature the nursery was immediately ordered closed to all new admissions.

2. It became the policy of the hospital to send home at the earliest practical date all uninvolved infants and their mothers.

3. Visitors were prohibited.

4. Thorough cleaning and disinfecting of the entire floor was instituted.

5. Emergency units were established in the hospital with strict isolation for the babies involved.

6. Water and food supplies were checked. Distilled water was substituted for tap water in the formula room.

7. Nose and throat cultures were secured on all attendants including doctors, nurses,

TABLE 5.

Before Onset	After Onset
1 Vitamin K, lactose, olac, drisdol, yeast, dextrimaltose	Nestles food, protein milk, saccharine, clysis, kapectate, coramine
2 Routine formula, breast	Clysis, kapectate, casec, dryco, whole blood, coramine
3 Routine formula, breast	As in case 2*
4 Olac, drisdol, breast	Casec, clysis, paregoric, Nestles food, coramine
5 Pet milk, dextrimaltose, breast	Casec, clysis, kapectate, dryco, paregoric, coramine
6 Pet milk, dextrimaltose, breast	As in case 5†
7 Dextrimaltose, evaporated milk, karo, breast	Clysis, whole blood, casec, coramine
8 Cow's milk, betalactose, breast	
9 Routine formula	Milk, lactose, lime water, clysis
10 Thyloquinone, similac, clysis, breast	Clysis, similac, whole blood, sulfapyridine (intravenously and orally), casec
11 Dextrimaltose, pet milk, dryco, betalactose, breast	Clysis, paregoric, barley water, sodium citrate, lac-bismo, protein milk, castor oil, vitamin K, calcium gluconate whole blood, oleum percomorphum
12 Breast, lactose	Protein milk, thyloquinone, saccharine, paregoric, dextrimaltose, belladonna, clysis, sulfapyridine, caffeine, prostigmine, dryco

*Cases 2 and 3 are twins.

†Cases 5 and 6 are twins.

cleaning maids, and anyone who had contact with the nursery. Those harboring *Strep. hemolyticus* were immediately removed from the vicinity.

8. Autopsies were obtained on all patients who died in the hospital.

9. Before reopening the nursery the entire technic was checked in regard to possible errors and inadequacies.

AUTOPSY FINDINGS

In all seven cases examined at autopsy a rather widespread patchy pneumonia was found. This pneumonia was characterized by an extremely hemorrhagic appearance grossly and microscopically. Several of the lungs showed very little leukocytic response, being entirely hemorrhagic, while the remainder showed varying degrees of polymorphonuclear reaction and two were associated with miliary abscess formation. Cultures taken from the lungs revealed the presence of mixed organisms among which were both non-hemolytic and hemolytic streptococci, *Staphylococcus aureus*, and *Esch. coli*.

All cases presented ileus with dilation of the intestinal tract with varying degrees of congestive changes in the upper small intestine. These congestive changes in some cases extended to the colon. Five showed some degree of superficial necrosis of the intestinal mucosa, exhibiting very little or no inflammatory cellular reaction. One case

presented a definite inflammatory gastroenteritis.

A terminal septicemia was confirmed by culture of the heart blood in two cases only, the organism being in one instance a non-hemolytic streptococci and in the other a *Staph. aureus* and *Esch. coli*.

All cases presented acute hemorrhagic splenitis and one case an acute interstitial pancreatitis.

Whether death in this disorder is due to toxicosis, changes secondary to diarrhea, primary virus infection or secondary infections is problematical.

SUMMARY AND CONCLUSIONS

A brief review of the literature regarding nursery diarrhea has been presented, together with an abstract of the recent outbreak in the nursery of Touro Infirmary in New Orleans.

It was not possible to establish any definite etiologic agent or agents from the data gathered in these cases. In this respect and in others this outbreak was similar to many which have occurred in other parts of the country.

Of the twelve cases involved, nine died. Seven of these came to autopsy. Universal findings at autopsy were a hemorrhagic type of pneumonia, together with ileus and congestive changes in the intestinal tract, many of which showed superficial necrosis

of the mucosa. A variety of organisms was isolated from the lungs.

It might be considered possible in view of the general picture presented at autopsy to theorize along the lines of a virus infection, creating a condition of debility, thus enabling various secondary invaders discovered in the course of the culture work to assume pathogenic roles. In support of this theory it may be pointed out that this outbreak occurred shortly before the crest of the recent epidemic of influenza that swept over this part of the country.

Lastly it may be pointed out that in this particular group of infants the disease apparently sought out those who were in some way under par at birth.

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A RECONSIDERATION OF THE VALUE OF NEPHROPEXY*

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AND
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This paper has for its purpose a consideration of the results in a series of ten cases in which nephropexy was performed. They present a small group among the many patients seen during a fourteen month period who presented roentgenologic evidence of abnormality of the upper urinary tract. The majority of patients experienced relief of symptoms after a gain in weight and the support of a surgical belt, without active surgical intervention. No thoughts of surgical intervention were entertained in any case unless there was definite roentgenologic and cystoscopic evidence of progressive renal damage as a result of obstruction, or a continuance of pain with definite abnormalities of the upper urinary tract.

We are well aware that the operation is neither new nor unusual. Since introduction of nephropexy by Hahn in 1881, the procedure has been subjected to an almost unending number of modifications; furthermore, its justifiable position among the accredited surgical procedures in the field of urology has varied between wide limits. We hope to be able to emphasize that, in properly selected cases, the procedure is indicated, justified, and effective.

The patients, ten in number, were all white females and were operated upon during 1940. The youngest in the group was 27 years, the oldest 56, the average age being 41.3 years. Eight were married and two unmarried. The presenting complaints were sometimes multiple but all of the patients had in common the complaint of pain referred either to the lumbar area or to the loin. Pain had been present in one

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patient for 25 years. The average duration of pain before consultation was one and one-half years. The pain was variously described either as lancinating or dull in character, with the latter type predominating. Unless carefully questioned, few patients described extension of the pain from the lumbar region to the anterior aspect of the abdomen. In every case the recurrent or persistent character of the pain was emphasized by the patient. In questioning the patients in regard to the duration of the pain, numerous instances were found in which the onset was stated as being only a few days or weeks previously. However, when detailed and searching questions were put, we were able to place the time of onset many years before the time of admission. We believe this to be a significant factor in deciding the propriety of surgical operation.

ADMISSION DIAGNOSES

The admission diagnoses (resident staff) were found to include nephroptosis in only three cases. Of the remainder, the diagnoses included recurrent appendicitis, cystitis, chronic pyelonephritis, ureteral calculus, renal calculus, and ureteral obstruction of unknown type. Three of the patients were seen in consultation at the request of the gynecologic staff. None had diagnoses of gynecologic pathology, but had been assigned to a gynecologic ward by the admitting physician.

Three of the patients had had a previous operation. These were cases numbers five, nine and ten. In case number five an hysterectomy and appendectomy had been performed in 1935. The patient stated that she had had backache since that time but could not state positively as to whether or not such had been present before. In case number nine, a nephropexy and appendectomy had been performed, the former on the opposite side 13 years ago with good result. In case number ten, an appendectomy had been performed in 1936, without subsequent relief of pain.

PHYSICAL FINDINGS

The pertinent physical findings included principally tenderness upon palpation, referred either to the lumbar region or to the upper or lower abdominal quadrants, or any combination thereof. In only one case could a mass be palpated either in the lumbar area or in the abdomen. Laboratory studies were for the most part within normal limits with the exception of the microscopic and cultural examination of the urine. Every patient was found to have evidence of urinary infection, either by direct smear, or culture, or both. In two patients the renal function, as estimated from the urea nitrogen of the blood and the phenolsulphonephthalein test of the urine, was found to be depressed below a desirable level. Preoperative cystoscopy and roentgenography revealed the presence of hydro-



Fig. 1—A. Retrograde pyelogram showing ptosis of right kidney and kinking of ureter at uretero pelvic junction.



Fig. 1—B. Intravenous pyelogram showing correction of deformity.



Fig. 2—A. Preoperative pyelogram showing ptosis of right kidney, hydronephrosis and kinking ureter.

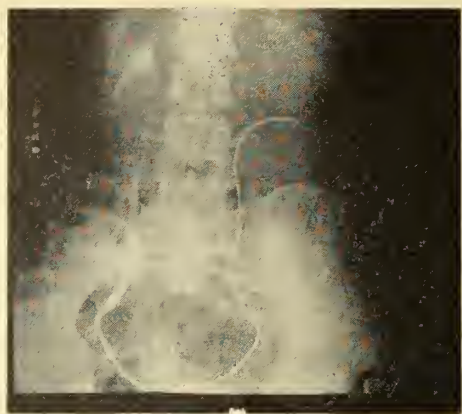


Fig. 2—B. Postoperative pyelogram showing correction of ptosis, hydronephrosis and ureteral kink.

nephrosis in five of the patients, although in only one did it approach a pelvic retention of moderate degree. At cystoscopy, evidence of urinary infection was confirmed in those patients in whom preliminary examination had shown it to be present.

Roentgenography formed the principal point of departure from which decision to operate was either made or rejected. However, in every case it served only as the point of departure, and not as the absolute criterion. Review of the films disclosed either abnormal mobility of one or both kidneys, deformity at the ureteropelvic juncture, kinking or angulation of the ure-

ter, dilation of the calyces, hydronephrosis, or any of these in combination.

TYPE OF OPERATION

Operation was performed in all patients under general anesthesia. The lateral position and Mayo type incision were employed. After mobilization of the kidney, either a modification of the Edebohl's nephropexy, or of the technic recently described by Young, was used.

Regardless of the "type" of operation used, particular care was given to denuding the kidney of its capsule. Since nephropexy implies fixation of the kidney, we attempted to immobilize it by enabling firm adhesions to form, in contrast to its normal condition. Five of the cases were placed

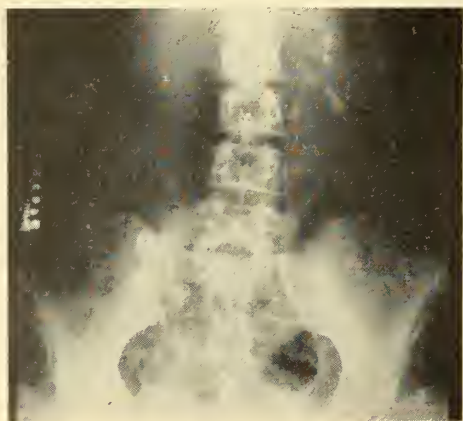


Fig. 3—A. Preoperative pyelogram showing ptosis of right kidney.

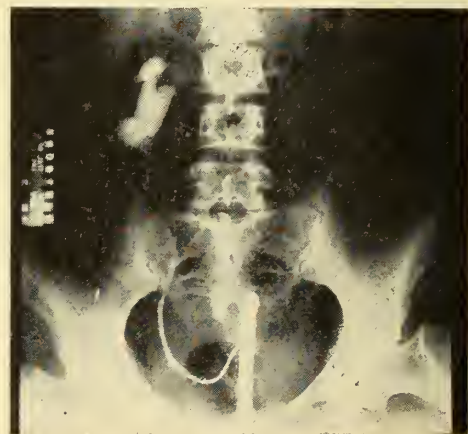


Fig. 3—B. Postoperative pyelogram showing correction of deformity.

in one group and five in the other. While we have divided these cases into two classes according to the type of operation, we wish to have it understood that nephropexy alone did not comprise the whole procedure, just as nephroptosis alone was not the sole indication; in all cases great care was taken to correct any abnormality, such as ureteral kinks due to aberrant vessels, or fibrous bands, where such existed.

POSTOPERATIVE CARE

The postoperative care in the uncomplicated cases included a period of bed-rest for three weeks, followed by the wearing of a supporting belt for an indefinite period, not less than one year. All patients had belts fitted before becoming ambulatory. The postoperative course was uncomplicated in seven of the cases. Of the remaining three, one developed a low-grade fever which persisted a few days, the cause of which we were unable to determine. Case number one developed an exacerbation of the previously present urinary infection on the sixteenth postoperative day. This was readily controlled after cystoscopy and administration of urinary antiseptics. Case number nine enjoyed an uneventful postoperative course for nineteen days, following which she developed high fever, abdominal distention, leukocytosis, and severe toxemia. Consultation with both the medical and surgical staffs failed to assist us in establishing the cause of this episode. A pre-

sumptive diagnosis of subdiaphragmatic abscess was made but never proved. Under symptomatic treatment, which included multiple blood transfusions, adequate hydration, and continuous abdominal suction, the patient recovered. At no time during her stormy course or afterward were we able to find a basis for interpreting the symptoms in relation to the operation.

Cystoscopy after convalescence was negative in all cases except case number eight in which the original retention of 25 c.c. was found to have been reduced to only 10 c.c. We were most fortunate in being able to demonstrate by means of x-ray, after convalescence, the correction of the anatomic deformities which had been present in the preoperative roentgen studies. The subjective result was relief of pain in every case.

CONCLUSIONS

1. A series of ten cases of nephropexy is presented.
2. The common symptom was dull pain in the lumbar region.
3. In five cases the roentgenologic examination revealed hydronephrosis.
4. In all cases, the roentgenologic examination revealed anatomic deformity at the ureteropelvic juncture or in the course of the upper ureter.
5. All patients presented evidence of urinary infection of varying degree.

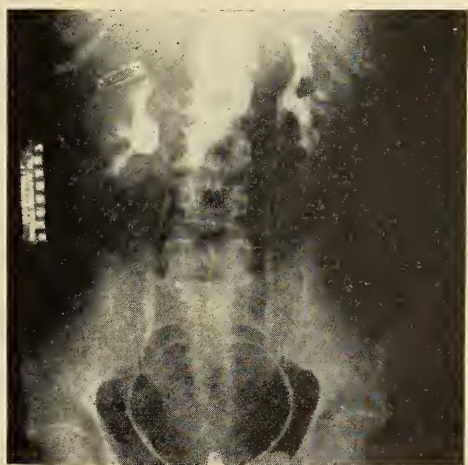


Fig. 4—A. Preoperative pyelogram showing kink at right ureteral pelvic junction.

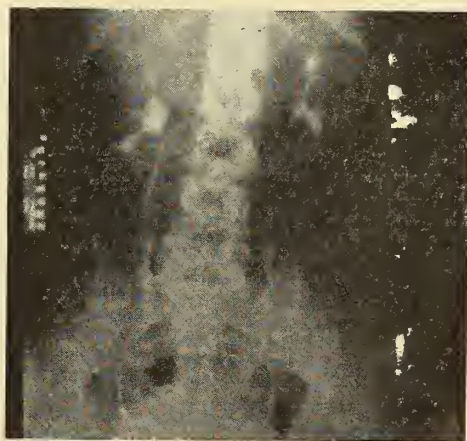


Fig. 4—B. Postoperative pyelogram showing correction of deformity.

6. Two types of technical procedure were employed for surgical correction.

7. Only those patients who presented evidence of obstruction or who returned to the hospital for recurrent pain, were seriously considered for operation.

8. Emphasis is placed on extensive denudation of the kidney.

9. Postoperative objective and subjective results were satisfactory in all cases.

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DISCUSSION

Dr. J. R. Stamper (Shreveport): I feel very grateful to the essayist for coming to Shreveport to consider a subject as old as nephropexy. I probably appreciate it more than most of you due to my past experience with the subject. As he has outlined, nephropexy simply means fixation of the kidney. Nephropexy has swung in and out of our medical armamentarium for the last couple of decades. It has enjoyed popularity and suffered disrepute, perhaps due to the fact that nephropexy in the beginning was usually performed by the general surgeons without the aid and assistance of trained urologists and modern urologic equipment. It cannot be successful without the knowledge of scientific urologic investigation.

I would like to enlarge the scope of the essayist's application of nephropexy and probably widen the scope as to symptomatology. The fixation of the kidney is performed in every case of kidney operation where the kidney is delivered and freed of its surrounding tissues, and particularly where the kidney is opened for the purpose of nephrotomy, or pyelotomy. This to my mind means nephropexy and is a very important point in kidney surgery, for if this is overlooked the kidney will be replaced in its bed and anchored, maybe in the proper position, but frequently in an improper position which allows some rotation or angulation of the pelvis or ureter which might bring about some degree of stasis in the future.

I want to present a slide here to demonstrate one case where hemi-nephrectomy was performed and the upper pole simply put back in the kidney bed without any attempt at fixation. As you see the kidney is completely rotated and the ureter goes in a loop above the level of the upper portion of the kidney. Strange to say, this individual had no symptoms from such a malposition of the kidney, where in the next five cases most likely would have symptoms from such a position. I will not have anything to say about the technic of the standard nephropexy, they are all satisfactory if properly applied.

As to symptomatology, I would like to classify that into three groups. First, the mechanical, as that of a movable mass in the abdomen. Second, all of the symptoms that go with urologic symptoms. Third, all of the symptoms that are manifested reflexly through the sympathetic nervous system. I show this slide to detail further the three groups of symptoms from ptosed kidney and the indication of nephropexy. I would like to show just a few slides to illustrate further the end results of nephropexy.

Dr. M. H. Foster (Alexandria): There are some determinations to be made in considering the performance of nephropexy:

First, that the cause for the pain in the lumbar back is not something extra-renal. Some years ago, a patient of mine was relieved of exceedingly severe lumbar backache by the extraction of two abscessed teeth. My gratification was increased when later I had to do a nephropexy for the husband because of pyelonephrosis.

Second, whether the ureter is adequate for drainage. No one can tell beforehand whether the results will be failures. Success or failure of nephropexy can only come after one or two years' time. Still we can tell whether the physiologic results will be satisfactory.

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FINGER PRINTS AND ATTEMPTED FRAUD*

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The present critical period emphasizes the usefulness of finger prints in personal identification. In a brief span of time several millions of aliens have been fingerprinted, and with the making of records for army and navy forces the current rate of finger printing in the United States is far above that of normal times. Finger prints provide for positive identification of every individual so registered, whether they be recorded to meet special needs of a national emergency, or for their more familiar application by agencies of law enforcement, or for various uses in civil life. It is the purpose of these brief remarks to bring to your attention some of the principles and advantages of finger print identification.

*Read at the Scientific Meeting of the Orleans Parish Medical Society, May 12, 1941.

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PRINCIPLES OF PERSONAL IDENTIFICATION

In every-day contacts we practice sight recognition of individuals. Adequately enough under usual circumstances, a person is recognized, or distinguished from others by his rounded, ruddy face, stubby nose, blue eyes, light hair, short stature, stocky build—and so on through a long list of natural or acquired bodily characteristics, mannerisms, habits of dress and other qualities—which with familiarity are assessed without conscious effort. The basis of sight recognition is the obvious fact that two individuals are unlikely to present the same combinations of characteristics; notwithstanding that they may have some in common, it is the totality of the combination which gives distinctiveness to each. Sight recognition is by no means infallible. Changes brought about by aging, disease, and sometimes intentional alteration of natural traits often lead to lack of recognition, and in the occasional instances of close resemblance there may be confusion of identities. Such lapses in identification usually are of little consequence in the daily affairs of most of us, but there are situations in which no mistake can be tolerated.

Precise methods of personal identification, at least as known in modern times, originated no earlier than six decades ago, when Bertillon announced the system which bears his name. To the less exact descriptive data previously employed in systematic police identification he added a series of eleven body measurements. The principle of their use is exactly that of ordinary sight recognition, that is to say, there is small chance of duplicating in two individuals the combination of the numerous described traits and measurements. The method is naturally more reliable than sight recognition, and it has the further advantage of being adapted to a classification of records which provides for ready search of the files, a necessity in uses such as identification of criminals. The Bertillon system was soon almost completely superseded by finger print identification, the method which is now universally employed for the registra-

tion of criminals, and which is finding increasing favor in various civil applications.

There is nothing very complicated in the system of finger-print identification,^{1, 2, 3} and such complications as there are need not be introduced in this discussion of principles. It is only necessary to point out that the finger prints (and corresponding patterns of the palms and soles) are ideally adapted to the needs of an identification system. They have the further advantage, in criminal investigation, of being impressed in the touching and handling of objects, so that the person unwittingly may make an identifiable record of himself. The delicate skin ridges of the finger tips are arranged in patterns, which are classifiable for filing under headings which may be subdivided without limit. Hence it is possible, having made the finger prints of an individual, to determine quickly if he has been previously printed and placed in the file. If found there, the record will not only establish his identity but also it will disclose the items of his prior history which have been entered. So full of detail is a single finger print, or even a portion of one, that an identification may be absolutely determined by its comparison with another print of the digit. With finger prints there is assurance of correct identification. Their characteristics, unlike those upon which we depend for sight recognition, do not change with the passing of time, and individual distinctiveness is so dependable that two persons never are confused.

Coincidences in names are notoriously common, and sometimes there is remarkable physical resemblance of individuals. In illustration, the frequently quoted case of two unrelated negroes confined in the Federal penitentiary at Fort Leavenworth is worthy of mention. These negroes, named Will West and William West, resembled each other so closely that the prison clerk found it almost impossible to tell them apart, and their Bertillon measurements agreed with such exactness that they might easily have been the measurements of one man, taken by two operators or by the same operator at different times. Their finger prints nat-

urally proved to be dissimilar, each print a unique tracery of skin ridges. The most diligent search has failed to reveal duplications in finger prints. The London newspaper, *News of the World*, was quite safe when in 1939 it offered a prize of one thousand pounds sterling, the condition being that the winner must have a finger print identical to any one of a series of prints reproduced for the contest in its pages.

APPLICATIONS OF FINGER PRINT IDENTIFICATION

It is unfortunate that in the minds of many persons there is still prejudice against finger printing, simply because it is employed as a means of identifying criminals. This prejudice, however, is gradually dying out. Witness, for example, the growing files of finger prints voluntarily filed in the Federal Bureau of Investigation by persons who appreciate the value of having these permanent records of personal identity.

There are many advocates of universal finger printing. Such registration of all persons would yield benefits more than repaying the expenditure involved. It is not necessary to enumerate all these advantages, which may be illustrated by example. The world's greatest file of finger prints is that of the Federal Bureau of Investigation. From police agencies throughout the United States, and to some extent elsewhere, duplicate finger print cards are sent to this bureau, which functions as a central clearing house of identification records. The Law Enforcement Bulletin published monthly by this organization carries numerous reports on identifications established through its facilities, usually in cases of unknown dead and victims of amnesia. The following instance is typical. The body of an unknown man was found in Meridian, Mississippi. The finger prints were made and forwarded to Washington, where a search in the files disclosed the name, a criminal history including arrest in New Orleans fourteen years earlier, and other recorded information admitting the tracing of relatives and friends. Identifications can be made only if the finger prints are on file, and the irony of these cases is that the persons who

can be so traced are at present largely only those with criminal records.

The Argentine Republic has made greater advance than any other nation in the development of civilian finger printing on a large scale. Finger print cards representing about one-half of the population are on file at the capital, Buenos Aires. Starting with the finger printing of applicants for appointment as police, in 1891, compulsory registration since has been gradually extended to include employees of banks and of the postal system, students on matriculation, electoral officials on their appointment, government employees, immigrants, domestic servants, chauffeurs and taxi drivers, some classes of tradesmen, and all the regulated professions—including physicians and dentists.

The general applications of finger prints are of importance to everyone, to the individual and to society. Several special uses are of particular interest to medical men, and some of these may be briefly mentioned.

False personation of applicants for life insurance and false claims for payment of insurance benefits would be obviated by the registration of prints on the form reporting the results of physical examination, subsequent claims being validated by a second set of prints.

In hospitals for the insane the registration of finger prints offers several obvious benefits, among them the proper disposition of those who have criminal histories. Already the Lima State Hospital, in Ohio, and the National Hospital for the Insane, of Cuba, have established this practice.²

Many maternity hospitals supplement the more immediately useful means of identifying the newborn, such as bead necklace, bracelet, tape or tag, by making the prints of both infant and mother on the same card immediately after the birth. The fingers of an infant are unsuitable for printing, but either the soles⁴ or palms⁵ serve as well for the purpose. Castellanos,² in Cuba, and Pond⁵ in this country emphasize that the value of these records lies not alone in providing for identification in the event of a

real or fancied confusion of two infants while in hospital but also for future reference in proving the identity of the person. It might be added, as a matter of peculiar local importance, that prints of infants born to light-colored negroes would serve in the later life of these individuals as a final court of reference on questions involving their racial origin.

ALTERATION OF FINGER PRINTS

We are accustomed to speak of finger print identification as infallible, and so it is except that the method can not prove identity under conditions which balk its use. If a man is finger printed and it is found that no previous prints are on record, then naturally he can not be identified by this system. And if after finger printing he later appears with both arms amputated, failure to establish his identity on the basis of finger print evidence can not be charged to a defect of the system. In such a case, by the way, sole prints would be recorded as a measure to forestall further complications. Nor can the system be blamed because the patterns of finger tips are damaged^{6, 7} by leprosy, scleroderma, x-ray dermatitis, and sometimes in occupations which expose the skin over long periods to the action of lime or other destructive agents. According to Ribeiro, some degree of affection of the finger tip pattern occurs in 80 per cent of the cases of leprosy observed by him. In some instances alteration of the epidermal ridges is observed even in the absence of superficially evident lesions of the hand or fingers, though minute active lesions accompanied by the bacillus of Hansen may be demonstrated in sections. Finger patterns exhibiting the changes typical of leprosy may be restored to normal in the course of treatment.

Damage of this sort utterly destroys the criteria used in identification, when severe and of such extent as to wipe out the patterns of all digits. The marks of individual identity may be preserved, however, for a single finger print or even a part of one is sufficient proof. This fact is strikingly demonstrated in instances of intentional

finger tip mutilation, carried out with the hope of frustrating identification. Three criminals who made this attempt⁸ may be cited—John Dillinger, "Gus" Winkler and Jack Klutas. Dillinger was said to have applied acid to the finger tips, only a few months prior to his death by shooting. The central regions of the patterns show the effect of this searing, but the remainder of the pattern on any one finger is by itself adequate to prove, under comparison with the earlier record prints, that the man was John Dillinger and no other. Likewise in the prints of Winkler and Klutas, who had gashed the balls of the digits, positive identification can still be made from the undisturbed areas of finger tip skin.

It is well known that some criminals have resorted to plastic surgery in the hope of escaping recognition after changes of facial contours and removal of scars. Updegraff⁹ has directed attention to another possible misdirection of plastic surgery toward attempted defeat of finger print identification. The case which he reports was a man who was operated upon for reconstruction of the hands, after burns. The results indicate that homotransplantation of the pattern-bearing areas of skin is feasible, and that the grafted patterns retain their original character. The unscrupulous surgeon who serves the underworld might undertake such transplantation, but Updegraff carefully outlines the points by which the fact of an operation would be disclosed.

SUMMARY

Briefly some of the principles of finger printing have been discussed and their application to identification has been presented.

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A REPORT FROM THE MEDICAL DIVISION OF THE SELECTIVE SERVICE OF LOUISIANA*

F. P. RIZZO, Major, M. C.†
NEW ORLEANS

There are some 18,000 physicians and nearly 7,000 dentists, a total of approximately 25,000 doctors working for Selective Service. In Louisiana there are approximately 425 physicians so employed. You are giving of your knowledge, your time, your office space and facilities, without compensation other than consciousness of work well done. You are making a noble contribution from a noble profession. In spite of this sacrifice of time and energy, the amount of discount, or of feeling of imposition, has been negligible. Of course, there have been instances in which physicians have refused to serve for one reason or another, but, in the main, the response has been highly satisfactory.

In some instances, examining physicians and local board members have been unjustly criticized in their community. In all cases, these people have only done their duty as their conscience dictated and in no instance have their decisions been motivated by personal feelings. All decisions are made after a careful study and a thorough investigation of all angles concerning each individual case. Undoubtedly, there are numerous instances in which the families or friends of registrants attempt to prevail upon the examining physician to indicate some physical defect which is not present, or to enlarge upon defects which are minor and not disqualifying in nature. In these cases, when the examining physician justly ignores the pressure and does what his conscience tells

him is right, he may become the object of unjust, and some times malicious criticism. All of this is wrong and contrary to the spirit of service and patriotism demanded of all individuals at this time. It would seem that, even now, many of our citizens are unaware of the gravity of the situation which confronts this Nation. Nevertheless, it is gratifying to know that the Gallup Poll a few weeks ago showed that 93 per cent of the individuals interviewed felt that local boards, including examining physicians, had performed their duties in a most acceptable manner.

As of May 31, 1941, Louisiana's examining physicians have physically examined 35,485 registrants. Of this number, 21,071, or 59.3 per cent, have been found physically fit. Eight thousand six hundred and twenty-five, or 24.3 per cent, have been recommended for Class I-B, and 5,789, or 16.3 per cent, have been placed in Class IV-F, or unfit for any military duty.

CAUSES FOR REJECTION

During the course of these examinations, some interesting facts have been uncovered. It has been found that 22 per cent of those failing to pass the examination failed because of dental deficiencies; 15.26 per cent have been disqualified by reason of cardiovascular disturbances. These included persistently high pulse rate and blood pressure, valvular heart disease and varicosities, such as to interfere with military training. Musculo-skeletal defects accounted for 14.83 per cent of rejections. These included deformities of extremities, or of the body, shortening or ankylosed joints; sequelae of infantile paralysis, symptomatic flat feet and marked disturbances in the height-weight ratio. Of those examined, 10.92 per cent have been rejected for nervous and mental diseases. Venereal diseases, such as syphilis and gonorrhea, accounted for 8.81 per cent of the rejections. Visual defects have accounted for 8.03 per cent; hernia, 5.79 per cent; eye, ear, nose and throat conditions, 3.19 per cent; and lung disturbances 1.99 per cent of the rejections. Miscellaneous disabilities, such as illiteracy, those having court records, and other undesirables have

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†From the Medical Division, Louisiana State Headquarters for Selective Service.

accounted for 9.15 per cent of the rejections.

When it is remembered that this large percentage of physical defects is among the younger men who are supposed to be in the prime of life, it is readily apparent that the situation uncovered in the course of these examinations by the Selective Service System is one which requires close study and definite plans for remedial measures if the health of the Nation is to be improved for the future. In the case of all registrants who have failed to pass the physical examination, the Local Board forwards a letter drawing attention to their physical defects and urges them to have these corrected, not only for the benefit of their own health, but for that of the State and Nation as a whole. In many instances this advice is being followed. In some conditions, notably syphilis, and other venereal diseases, the Public Health Service is taking a very active part in promoting curative treatments. This agency is making an earnest effort to contact every man of whom it obtains knowledge, and urging him to obtain treatment. If he cannot afford treatment from private sources, he is assured that the State Department of Health is prepared and willing to give curative treatment without expense.

It may be well at this time to draw attention specifically to some of these causes for rejection. In over half the cases of syphilis, the registrant had no suspicion of harboring the disease and, undoubtedly, he would have gone on, become married and perpetuated the disease in his family. Fortunately, nearly all of these registrants who have advanced to the point of physical examination are young, unmarried men, and they have not had time to damage their own health materially, nor that of others. When it is considered that approximately 9 per cent of young men are infected with syphilis, it can be seen that by detecting these cases before great damage has been done, such as to the cardiovascular, cerebrospinal and visceral system, and promptly instituting treatment, the health of the Nation will be improved materially from the standpoint of this dis-

ease in the years to come. This will allow their offspring to have a chance to be free from this disease, and theirs after them. Thus, we can begin to see the magnitude of the improvement in general health that can be expected.

In many instances the registrant did not know that he had a hernia, heart disease, high blood pressure, until it was brought to his attention during the course of his examination, or by the letter that he subsequently received. A very large number who have insufficient teeth properly to masticate their food had thought nothing of it until they had been rejected. In most cases, they do not realize that this will definitely affect their general health in the course of time. It is also evident that the correction of other physical defects and diseases, which are not at present disabling, will make these young men healthier and lead to a general improvement in the health of the Nation in the future. It is unfortunate that all registrants do not go on to the point of physical examination because of being placed in a deferred classification for one reason or another. Undoubtedly, if all these men were examined, many more instances of diseases or physical disability would be uncovered and probably receive adequate treatment before great damage is done.

NEUROPSYCHIATRIC PROBLEMS

Before concluding this part of my discussion, I would like to touch upon another important subject, and, that is neuropsychiatry as applied to the Selective Service System and the Army. Experiences gained from the last war and since the last war, in this respect, have made us very careful. As estimate of the cost to the Government of every patient of this kind, including the cost of buildings, compensation and other expenses to take care of them, amounts to \$30,000 per individual. In reviewing this subject, it is noted that during the World War 14 per cent of those examined by Local Boards were rejected by reason of mental conditions. Another 8 per cent were rejected at induction stations. In spite of this, 98,000 men of 4,250,00 inducted into

the military service left the service with mental and nervous diseases. A large percentage of these had their mental state and disease before they entered the service. In order to avoid a repetition of this costly venture, it behooves the examining physicians and Medical Advisory Board specialists to be constantly on the alert for this type of case. It is necessary for us to keep in mind the Army is not to be considered a mental clinic. Usually, if an individual is a mental problem in civilian life, he becomes more so in the Army. Neither does the chronic alcoholic, the trouble-maker, the social misfit, the person who is never satisfied or who jumps from job to job, or is continually in trouble with the law enforcement agents, make a good soldier.

Another point to be remembered is that a soldier who is physically or mentally unfit to perform his duties is not only of no use but is an actual hindrance for he requires the attention of others, perchance in time of stress, of an already overworked medical department. The old notion that the Army can make a man out of a misfit in his community is all wrong, especially in cases of mental or personality misfits.

Many of these cases are difficult to detect and they will tax the ingenuity and skill of the most experienced. Any mental, emotional or other kind of instability would be cause for rejection. Those with queer behavior and who are particularly noted for this in their neighborhoods should be rejected, regardless of their satisfactory physical condition. Careful examination and history taking will often be required. The following objections in this respect should be our goal: (Quoting Dr. Harry Stack Sullivan, Psychiatric Advisor to the National Headquarters Selective Service System). "(1) The trainee's physical and mental condition should be such that a year of rigorous military training will not harm him. (2) That he should be able to fit into society and again find his place in the social order after demobilization. (3) He should reasonably be expected to remain capable of service at any time during his ten years' reserve status, should war come upon us."

The question is frequently asked, why reject so many men who are able to do physical work without any apparent damage. The feeling comes to all of us sometime that the Army is so big that there should be jobs for all sorts of men, and that places can be found for those who have been refused, but who are apparently fully able to fill some kind of place. It is true, the Army is large and there are all sorts of places for men in training, but, for the present, only those most fit for general military duty are wanted. It is felt that the time is too short and the task too great to spend time and labor on any except the best men available. This point has been missed by some of our people.

By the term "General Military Duty" we mean that when one is fit for such duty he is able to do any service that he may be called upon to perform; to march with a pack for 20 miles and at the end of the march to engage in a battle, if necessary; to live in barracks with his fellow soldiers, caring for himself, and so conducting his barracks life that he is not objectionable to his fellows; to live, if necessary, in camps under trying and uncomfortable conditions, without undue complaint of the heat, the cold and other annoying conditions, and ready at all times to respond in a soldierly manner to any demand that may be placed upon him.

It must be remembered that it is for the Army that we are to procure men and, therefore, they set a physical standard to be met by the inductees. We cannot change them. Selective Service has, however, the privilege of suggesting changes to the Army. A number of changes have been made and others are under consideration at the present time. The objective at this time is to secure an Army that will be tops physically, mentally and morally; that they will serve one year on active duty and ten years in the reserve.

INDUCTION STATIONS

Conflicts have occurred between the findings of the local board examining physicians and induction station physicians. In the main these have been due to unfamili-

arity with the regulations on the part of the examining physicians. Also, the examinee very often acquires new conditions, after the examination, either accidentally or intentionally; especially is this so in the case of venereal diseases.

On the other hand, the position of the induction station physicians must be realized. They stand as the guardians of the portals of entry into the Army. It is their sole responsibility to see that none but the physically fit enter these portals. In performing their part of the job, we of the Selective Service System sometimes feel that they are too zealous and turn back men whose physical condition is such that in our opinion renders them classifiable in I-A. Undoubtedly this occasionally happens but we must not lose sight of the fact that these induction station physicians are also human and thus subject to human fallibility. Their examination, however, must be exact and it is only natural that they should detect defects and turn back men who have passed their local board. This is not necessarily a conflict, but only challenges each to study and understand the objective of the other, which, after all, is the common objective.

Of course, many of these registrants who fail to pass the physical examination are not rejected so far as future service is concerned should they be needed, as approximately 25 per cent have been placed in Class I-B and are qualified for limited military service. To date, there has been no call for any of these. Nevertheless, they form an extremely large pool from which large numbers could be immediately drawn in the case of necessity.

I shall now approach the subject which is of interest to every one of us; I refer to medical personnel. There is an over all shortage of doctors in the country. Distribution is poor. In a few of the larger metropolitan areas, there may be a surplus, but in the vast rural areas of the country shortages exist everywhere.

The defense program as now outlined, will require 7,900 physicians for the Army, 900 for the Navy, 100 for the Public Health

Service and 100 for the Veterans' Administration, a total of 9,000 medical officers, in addition to present staffs. To date, 90 medical reserve officers have been called to active duty from Louisiana.

It is estimated that when services are filled, under existing regulations about one-half of the medical officers will return to civilian practice after one year of military duty. Therefore the medical Federal services will require about 4,500 newly commissioned officers each year. These must be obtained from the annual graduates of the medical schools and hospitals and from the practicing profession of the country.

THE MEDICAL RESERVE CORPS

Approved medical schools of the United States graduate about 5,000 per year. It is estimated that about 60 per cent of these can be counted upon for duties in one of the services after completion of an internship. On this basis there will be about 3,000 medical men annually available for the military services to meet an estimated need of approximately 4,500. The shortage of about 1,500 will have to be drawn from civilian practice and through the Army and Navy Medical Reserve Corps.

An expansion of the military services beyond the present program will require 6.5 additional medical officers for each 1,000 men added to the armed forces. There are 13,500 physicians in the Medical Reserve Corps. The experience of the Corps has been that about 75 per cent of these men are fit for active service. Counting those who are now on duty it is estimated that the present Reserve Corps will be exhausted by August, 1942.

There is no limit to the number of commissions available to qualified doctors in the Medical Reserve Corps of the Army. The Army is anxious to build up a pool of Medical Reserve officers which will take care of their needs throughout the emergency. It is felt that doctors in the military age who are qualified should secure a commission and prepare to serve their year. A memorandum from National Headquarters of Selective Service, issued on May 2, has

stated specifically that if a doctor does not do this and is found to be surplus in his community, there can be no excuse for his deferment—to the contrary, he should be inducted when his number comes up. The War Department, as well as all interested groups, concurs that the initial or first internship year is a part of the basic medical education. Young doctors who hold reserve commissions are exempted from the operation of Selective Service, by their commission, and it has been stated, as a matter of policy of the War Department, that young doctors holding commissions and serving their initial internship year will not be called to active duty. In the same memorandum from National Headquarters, it was stated: "It is of paramount importance that the supply be not maintained but encouraged to grow and that no student or intern be called to military service, before attaining that status."

The responsibility for deferment lies only upon the Local Board, subject to review by the Appeal Boards. It is a question of an understanding of the situation by the Local Boards. We, at State Headquarters, are making every effort to see that this directive is carried out as intended.

SUMMARY

It is felt that there is no difficulty or controversy which cannot be settled by an understanding between all persons concerned. The success of the Selective Service System and the present supreme effort depends upon the wholehearted cooperation of the citizens of this great democracy. There are, of course, rough places to traverse and at times some faint-hearted among us may become discouraged, but I am certain that the medical profession can be counted upon to do its part nobly and well, no matter how great the emergency.

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SELECTIVE SERVICE EXAMINATIONS

There is published in this month's issue of the Journal a report from the Medical Division of Selective Service of Louisiana. It is earnestly hoped that this article will receive the attention of the members of the medical profession throughout the state and that they will take cognizance of the information obtained in the article, more particularly that which has to do with the physical condition of the men examined for the draft.

It is obvious that amongst the causes of rejection, many of the conditions are of comparatively minor moment and many of these conditions bringing about rejection are remedial. Slightly over one-fifth of the men coming before the examining boards failed to pass the examination because of dental faults. This condition may be the result of deficient diet, lack of care, or the easiest way out, by which is implied that a tooth is extracted as soon as caries sets in. Certainly there is need for dental hygiene and dental education in the state. The musculo-skeletal defects which a few less than one-eighth of the men were rejected for, are frequently conditions which can be relieved. Many of the orthopedic defects are capable of being improved, if not cured, and some of the deformities can be improved to such an extent that they would not cause any disturbance in active civil life. A hernia likewise is and can be corrected; the same thing applies to many of the eye, ear, nose and throat conditions which caused rejection. The venereal disease rate is high but not unusually or markedly so; 8.81 per cent of men who are in the period of active sexual life present not an unduly high figure as venereal disease rates go, but one which is to be condemned. Venereal diseases are preventable and the venereal disease rate should be, and ought to be, low. In so far as neuropsychiatric conditions are concerned, fundamentally most of these depend upon the gene inherited from ancestors. The remedy for such conditions is most certainly not clearly defined at the moment.

Major Rizzo points out that in many instances the men examined were unfamiliar with the fact that they did have physical defects which, incidentally, could have been discovered earlier in life. This illustrates well the necessity of the yearly physical examination for the adult and more particularly a complete and thorough examination of adolescent children, at which time many defects may be discovered by careful study of their body. The same statement applies to the cases of syphilis. Many men did not know that they had the disease

and were indeed fortunate that it was discovered and that measures will be taken to prevent the serious late complications of this scourge.

It is disturbing to think that only 60 per cent of the young men in the State of Louisiana are physically fit to do general military duty. Of course the standards are high; it does not mean that the 40 per cent who do not meet the Army requirements are not able to carry out civilian occupations which will be appropriate to their physical condition. After all, only one-sixth of the men were totally physically or mentally unfit for military duty. If these men have correctable defects, and they are promptly attended to, their life expectancy and their physical well-being during life should not be impaired. Men who are classified as deferred have, for the most part, only minor defects which would in no way detract from their ability to engage in practically any kind of occupation of civil life. It is the 16 per cent who are in class IV-F that the physicians of the state will be called upon to aid. A great deal can be done for these men which will give them a happier and probably a more lucrative life. Local boards, in writing, are informing the men of the reasons they failed to pass the physical examination. Many doctors will see these letters and will be called upon to give their best service and advice to rehabilitate the men rejected on account of physical defects.

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THE PRESCRIBING OF DRUGS

The Federal Food and Drug Administration of the United States Department of Agriculture has been exerting increasing pressure to stop the more or less promiscuous selling of potent drugs without a physician's prescription. It may be that physicians may not be in accord or agreement with the decisions made by the Food and Drug Administration as to the danger of certain drugs. The average doctor does not think that the barbiturates are dangerous or that thyroid extract is particularly harmful; probably they are not under ordinary circumstances but when one considers the

number of attempted suicides with the barbiturates or when one cogitates on the dangers of a person with subclinical hyperthyroidism taking large doses of thyroid extract, it can be readily appreciated that the decisions of the Food and Drug Administration are correct.

As a matter of fact counter dispensing without a prescription hurts the doctor's pocket. If a presumptive patient takes drugs which have a definite therapeutic effect and which are potentially dangerous and yet sold without a prescription, the doctor loses a patient and the person taking and medicine might definitely be harmed.

Some physicians are objecting to the attitude of the Food and Drug Administration in that they do not wish to write prescriptions for drugs which previously had been ordered by word of mouth. This is a short-sighted point of view. The few minutes it takes to write a prescription are minutes well spent. Ordering proprietary preparations, instead of prescribing them, is another habit doctors have which should not be condoned for innumerable reasons. The average physician may not know that a proprietary preparation costs no more when dispensed as a prescription in an unlabeled box or bottle than it does when dispensed in the original wrapper which may contain propaganda for the use of the drug and which may come close to claims which might be a cause for calling the preparation misbranded. Incidentally, misbranding is so designated when a drug is called by a name not recognized in the U. S. Pharmacopeia or in case it is a fabricated compound with two or more ingredients, if the common name of each ingredient, as well as the quantity of alcohol in the compound, is not placed on the label. Unproved therapeutic claims are forbidden. There is a large number of potentially dangerous drugs, if used indiscriminately and promiscuously, which are not supposed to be sold over the counter without a physician's prescription. Elsewhere in the Journal there is published recent information from the Food and Drug Administration relative to drugs that can be sold only upon the prescription of a physician or dentist.

TWO INNOVATIONS IN TREATMENT

In a recent number of the *Journal of the American Medical Association* there were presented two new methods of treatment for two totally different conditions. Inasmuch as both of these two conditions have never had any really effective type of treatment, it might be well to discuss them briefly.

The first is not, strictly speaking, a method of treatment, but is a method to prevent one of the most disturbing complications that is likely to occur following operation, namely postoperative thrombosis. From Stockholm, Crafoord and Jorpes¹ have sent their report dealing with the use of heparin in preventing thromboembolic complications after surgical procedures. These investigators gave heparin to 325 patients, in no one of whom did postoperative thrombosis occur. In a control series of some three times as many patients, thromboembolic complications occurred in 9 per cent. The patients in both series were in the thrombosis age period and the operations were all major operations, for the most part abdominal in character.

The authors started heparin four hours after operation and continued the use of the drug for five to ten days. The preparation was given intravenously in a 5 per cent sterile solution. The dose of heparin varied

from 250 to 350 milligrams a day. No unfavorable results and no complications followed the use of the preparation. In addition to the patients they studied, they also mention 88 patients with gynecologic disorders who failed to have thrombotic expressions after operation, whereas in the control series there occurred these complications in 4 per cent of the patients.

The second condition, giardiasis, is an extremely difficult and most unsatisfactory one to treat. A good many believe that giardiasis does not cause symptoms; however, this has been disproved in recent years.

The treatment of giardiasis, suggested by Hartman and Kyser,² is the use of atabrine. They found that this drug was efficacious in 97 per cent of instances in eradicating giardia from the intestinal tract. Treatment consisted of giving 0.1 gram three times a day for five days. The method is simple and apparently efficacious. The only possible contraindication to the administration of atabrine is advanced liver disease. If the atabrine treatment of giardiasis is effective as these reporters believe, an efficient and simple method has been evolved for the cure of this tenacious condition.

1. Crafoord, C., and Jorpes, E.: Heparin as a prophylactic against thrombosis, *J. A. M. A.*, 116:2831, 1941.

2. Hartman, H. R., and Kyser, F. A.: Giardiasis and its treatment; a clinical study, *J. A. M. A.*, 116:2835, 1941.

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TRANSACTIONS OF ORLEANS PARISH MEDICAL SOCIETY

During the month of July the Society held one regular scientific meeting. The program was as follows:

1. Intracranial Foreign Bodies—Review of Literature and Case Report

By Drs. Gilbert C. Anderson and Leon Hart

2. Some Newer Developments in the Treatment of Cerebrospinal Fever

By Drs. C. J. Tripoli and R. E. Selser

3. Anlage Tumors of the Lung: Their Protean Histological Patterns in Bronchiogenic Neoplasia

By Drs. William H. Harris and Herbert J. Schattenberg.

NEWS ITEM

Dr. H. B. Alsobrook recently addressed the Kiwanis Club at a luncheon-meeting at the St. Charles Hotel.

Dr. James T. Nix delivered the baccalaureate address at the 87th commencement exercises of St. Stanislaus College.

Dr. H. W. Kostmayer read a paper on the Endocrine Glands and the Therapeutic Use of Some of the Available Products at a meeting of the Northeast Mississippi hospital staff of the Prentiss County Medical Society at Booneville, Mississippi, July 7.

Dr. A. J. Hockett was recently appointed chairman of the American Hospital Association's committee on physical defense of civilian hospitals.

Dr. T. A. Watters attended the 16th seminar of the Committee on Cultural Relations with Latin America, recently held at Mexico City.

Dr. Walter J. Otis was made a fellow of the American Association on Mental Deficiency at the 65th annual meeting of this organization recently held in Salt Lake City.

TREASURER'S REPORT

Bank Balance, May 31, 1941.....	\$6,097.08
June Credits	\$ 689.01
Total Credits	\$6,786.09
June Expenditures	\$ 677.34
Actual Book Balance, June 30, 1941....	\$6,108.75

CALENDAR OF MEETINGS

- August 4. Orleans Parish Medical Society Board of Directors, 8 p. m.
 August 5. Eye, Ear, Nose and Throat Staff, 8 p. m.

- August 6. Clinico-pathologic Conference, Charity Hospital Morgue Amphitheater, 1:30 p. m.
 August 7. Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.
 August 12. Eye, Ear, Nose and Throat Society, 8 p. m.
 August 13. Clinico-pathologic Conference, Charity Hospital Morgue Amphitheater, 1:30 p. m.
 August 18. Clinico-pathologic Conference, Baptist Hospital, 8 p. m.
 August 20. Clinico-pathologic Conference, Charity Hospital Morgue Amphitheater, 1:30 p. m.
 Clinico-pathologic Conference, Hotel Dieu, 8:15 p. m.
 August 21. Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.
 August 27. Clinico-pathologic Conference, Charity Hospital Morgue Amphitheater, 1:30 p. m.
 French Hospital Staff, 8 p. m.
 August 28. Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.
 August 29. L. S. U. Faculty Club, 8 p. m.

Edwin L. Zander, M. D.,
 Secretary.

LOUISIANA STATE MEDICAL SOCIETY NEWS

C A L E N D A R

PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
East Baton Rouge	Second Wednesday of every month	Baton Rouge
Morehouse	Second Tuesday of every month	Bastrop
Orleans	Second Monday of every month	New Orleans
Sabine	First Wednesday of every month	
Second District	Third Thursday of every month	

SOUTHERN MEDICAL ASSOCIATION MEETING

The Southern Medical Association meeting will be held in St. Louis on Monday afternoon, Tuesday, Wednesday and Thursday, November 10-13 instead of Tuesday, Wednesday, Thursday and Friday forenoon, November 11-14, as previously announced.

The Association will open at noon on Monday, the registration beginning at that time, the scientific programs beginning at 2:00 p. m. and continuing through Tuesday, Wednesday and Thursday, all Association activities being concluded in the late afternoon of Thursday. The registration, scientific and technical exhibits, all clinical sessions, all sections and all conjoint meetings, will be held at the Municipal Auditorium.

The General Session, open to the public, will be held on Monday evening; the General Session for

the address of welcome, the President's Address and the Report of Council, followed by the President's Reception and Ball, will be on Tuesday evening; and the Alumni Reunion Dinners will be on Wednesday evening, all these evening activities to be held at the Jefferson Hotel.

LeDOUX HONORED

Dr. Lucien A. LeDoux was elected president of the New Orleans Gynecological and Obstetrical Society at the July meeting. The following other officers were elected: Dr. J. W. Reddoch, vice-president; Dr. E. C. Smith, second vice-president; Dr. E. H. Countiss, secretary, and Dr. H. B. Alsbrook, treasurer. The election was held at an informal dinner meeting at Kolb's Restaurant where the organization was entertained by Dr. E. L. Zander, retiring president.

NEWS ITEMS

Acting Assistant Surgeon Claude G. Eccles, U. S. P. H. S., has been ordered to the U. S. Marine Hospital at Carville for medical duty. Dr. Eccles will replace Acting Assistant Surgeon Sam Black who has been ordered to Memphis, Tennessee.

Acting Assistant Surgeon Harold Whitted has been ordered to New Orleans for duty in the United States Public Health Service.

Dr. Wm. H. Gordon, U. S. P. H. S., has arrived in New Orleans for duty at the United States Marine Hospital.

Assistant Surgeon Charles L. Williams, Jr., has been relieved from duty in New Orleans and ordered to proceed to Raleigh, N. C., for duty in the State Health Department.

Assistant Surgeon Llewellyn E. Kling has been relieved from duty in New Orleans and ordered to proceed to the Municipal Health Department, Omaha, Nebraska, for duty.

Assistant Surgeon James L. Baker has been relieved from duty at the U. S. Marine Hospital, New Orleans, and ordered to the U. S. Quarantine Station in the same locality.

Assistant Surgeon George E. Parkhurst has been relieved from duty in New Orleans and ordered to proceed to Johns Hopkins Hospital for duty.

Assistant Surgeon Robert G. Wetterstroem has been relieved from duty in New Orleans and ordered to proceed to Washington, D. C.

Assistant Surgeon Edward C. Budd has also been relieved from duty in New Orleans and ordered to proceed to Washington, D. C.

At the annual meeting of the Phi Rho Sigma Medical Fraternity held at Lake Wawasee, Indiana, amongst the officers elected were Dr. Francis L. Jaubert, of New Orleans, and Dr. Dudley M. Stewart, formerly of New Orleans, as members of the Grand Council.

Dr. H. L. Kearney was elected to active membership in the American Broncho-Esophagological Association at its annual meeting in June of this year.

Dr. Julian Graubarth, president of the Louisiana Pediatric Society, has been appointed state chairman for Louisiana of the American Academy of Pediatrics, succeeding Dr. Robert A. Strong, resigned.

The seventh annual meeting of the Mississippi Valley Medical Society will be held at Cedar Rapids, Iowa, October 1-3.

The 1941 annual meeting of the National Society for the Prevention of Blindness will be held in New York City, December 4-6.

The American Bureau for Medical Aid to China has planned to send \$5,000 a month to China. Con-

tributions for this cause may be sent to the United China Relief, 1790 Broadway, New York City.

The twentieth annual scientific and clinical session of the American Congress of Physical Therapy will be held September 1-5 at the Mayflower in Washington, D. C.

SAVE YOUR RUBBER

Hospitals throughout the state are actively participating in a campaign to save all rubber in behalf of national defense. The individual doctor is requested to save his old rubber goods for this purpose. Mr. Frank Groner, of the Baptist Hospital, New Orleans, president of the State Hospital Association, will be very glad indeed to receive this rubber and it may be sent direct to him at the Baptist Hospital.

INFORMATION CONCERNING DRUGS THAT SHOULD BE SOLD ONLY TO OR UPON THE PRESCRIPTION OF PHYSICIANS OR DENTISTS

The Food and Drug Administration, Federal Security Agency, has received numerous requests from drug manufacturers, retail and wholesale drug associations, and others, for a list of those drug products which it considers dangerous when sold otherwise than on the prescription of a physician, dentist, or veterinarian licensed by law to administer drugs.

In answer to such requests, the Administration has pointed out that the Food, Drug, and Cosmetic Act places upon the manufacturer and the distributor the responsibility for properly safeguarding the marketing of drugs which may be dangerous to the purchaser if distributed without restriction. Obviously, it is impossible to list all drugs which may be dangerous since not only the compositions but also the directions for use and the conditions in which their use is recommended may have a very definite bearing on the question of safety or danger. As examples of drugs which are considered dangerous when distributed for use otherwise than on prescription, the following have been mentioned:

Aconite	Colchicum
Aminopyrine	Emetine
Barbiturates	Phosphides
Benzedrine sulfate (for internal use)	Phosphorus
Cantharides (for internal use)	Radium
Chrysarobin or goa powder	Sulfanilamide
Chrysophanic acid	Sulfapyridine
Cinchophen, neocinchophen, and other cinchophen derivatives	Sulfathiazole
Colchicine	Tansy, tansy oil
	Thiocyanates
	Thyroid

The anthelmintic drugs: Carbon tetrachloride
 Tetrachlorethylene
 Male fern (aspidium)
 Santonin
 Wormseed oil (chenopodium oil)
 Thymol

It is our opinion that preparations containing bromides should not be sold without prescription if the dosage provided involves the consumption of more than 30 grains per day or more than 15 grains during any 3-hour period.

The same is true of acetanilid, in the case of medicines that provide a total daily intake of more than 5 grains or more than 2½ grains during any 3-hour period.

For bromide-acetanilid combinations, we have suggested that preparations for lay use should not provide more than a total daily dose of 15 grains of sodium bromide and 5 grains of acetanilid, or more than 7½ grains of sodium bromide and 2½ grains of acetanilid during any 3-hour period. Comparable amounts of other bromide preparations should, of course, be subjected to the same restrictions.

There is ample scientific evidence to support the view that preparations providing a daily dose of more than 15 grains of acetophenetidin or more than 15 grains of antipyrine are dangerous within the meaning of section 502 (j) when distributed for indiscriminate lay use. Investigations which are currently in progress strongly suggest the probability that somewhat smaller daily doses of these drugs may likewise be dangerous when consumed indiscriminately. After public notice, our regulatory program will, of course, include actions based on sales of acetophenetidin and antipyrine under circumstances providing for a somewhat smaller daily dose if scientific opinion becomes available to establish the illegality of such sales.

In our judgment, epinephrine in solution of 1% or stronger cannot safely be indiscriminately used, and the same is true of ipecac in daily dosage greater than 10 grains, as well as of strychnine in a daily dose greater than 1/20 grain.

We have also expressed the opinion that products containing therapeutically effective proportions of digitalis, squill, strophanthus, or other pharmacologically related drugs may not be safe for indiscriminate distribution.

It has been our experience that manufacturers of such drugs as have been mentioned have taken advantage of the regulation permitting omission of directions for use and substitution of the so-called "prescription legend." Where the legend "Caution: To be used only by or on the prescription of a physician (dentist, or veterinarian)" appears upon the package in lieu of directions for use, it is the obligation of the retailer to observe the injunction that the article be dispensed only upon prescription.

The fact that the Federal law is applicable to the distribution by retailers of drugs which have been in interstate commerce in no way restricts the enforcement of State and local acts relating to the sale of drugs or the practice of pharmacy.

HEALTH OF NEW ORLEANS

The Bureau of the Census, U. S. Department of Commerce, has reported that for the week ending June 14 there were 141 deaths in the City of New Orleans as contrasted with only 106 the previous week. Eighty-three of these deaths were in the white and 58 in the colored population. There were 16 deaths in children under one year of age; 11 white and five negro. For the week closing June 21 there were reported 125 deaths, divided between the two races; white 72 and negro 53. In this week there were nine deaths in infants under one year of age, one third of whom were white and two-thirds negro. The number of deaths for this week showed quite a considerable fall over the previous week when 141 deaths were listed. For the week which terminated on June 28, of the 140 deaths reported in the city, 96 were in the white and 44 were in the negro and ten in infants under one year of age. There was a slight increase in the number of deaths in the City of New Orleans for the week which ended July 5. Of the 146 deaths reported this week, 93 were in the white population and 53 in the negro. There were 11 infant deaths, all of which were in the white race except one.

INFECTIOUS DISEASES IN LOUISIANA

The morbidity report of the Section of Epidemiology of the Louisiana State Department of Health for the week ending June 14, showed that syphilis, as practically always, led all the other reportable diseases in incidence. During this week there were listed 130 cases of this disease. Other diseases occurring in numbers greater than ten, in numerical sequence, are as follows: 39 cases each of pulmonary tuberculosis and gonorrhea, 18 of measles, 16 each of cancer and typhoid fever and ten of pneumonia. The typhoid fever cases were scattered throughout the state, no one parish had more than two except Caddo which reported seven. During this week there was reported among the rarer diseases, a case of poliomyelitis in Caldwell Parish and two cases of cerebrospinal meningitis, one in Orleans Parish and one in Ouachita Parish. The following week there were only six reportable diseases occurring in the state in numbers greater than ten. These included 371 cases of syphilis, 46 of gonorrhea, 19 of pulmonary tuberculosis, 16 of whooping cough, 11 each of typhoid fever and cancer. New typhoid fever cases were again spread throughout the state, except that five were found in Richland Parish. Of the unusual diseases, one instance of typhus fever was discovered in Avoyelles Parish, two in Iberia Par-

ish, and two in Lafayette Parish. One case of poliomyelitis was reported from Rapides. In the week which terminated June 28, there were listed 170 cases of syphilis, 40 of pulmonary tuberculosis, 24 of typhoid fever, 21 of cancer, 19 of gonorrhea, 14 of whooping cough and 11 of pneumonia. Apparently the mild epidemic of typhoid fever in Richland Parish was at its height as there were reported ten additional cases. East Carroll reported five cases and the other cases were spread widely throughout the state, no one parish reporting more than two. This week there were two cases of poliomyelitis, one in Ascension Parish, and one in East Baton Rouge. For the week which closed July 5, the twenty-seventh week of the year, there were recorded 108 cases of syphilis, 30 of pneumonia, 25 of gonorrhea, 23 of pulmonary tuberculosis, 21 of cancer, 12 of whooping cough and ten of malaria. The mild epidemic of typhoid fever in Richland apparently was under control because no new cases were reported this week. Likewise there were no new cases of poliomyelitis. One case of typhus fever was discovered in Vermilion Parish and one case of cerebrospinal meningitis in Cameron. Not a single parish reported more than one case of typhoid fever this week. For the week ending July 12, gonorrhea for the first time in many months led the list of reportable diseases with 120 instances, followed by 104 of syphilis, 34 of malaria, 30 of pulmonary tuberculosis, 27 of whooping cough, 20 of dysentery, 19 of pneumonia, 12 each of cancer and typhoid fever. A case of poliomyelitis was reported from Orleans Parish but this case was brought into the city from an outlying parish, name not given. Three typhoid fever cases reported from Orleans Parish were also imported. The other cases were scattered throughout the state, Sabine and St. Mary with two each were the only parishes with more than one case.

The incidence of typhoid fever for the weeks recorded is less than the five year average of the corresponding weeks. On the other hand, syphilis incidence is quite markedly increased, probably due to the fact that there is a more complete reporting of these cases.

ARTHUR CAIRE, SR. (1868-1941)

Dr. Arthur Caire, Sr., for many years a member of the State Medical Society, died July 16 at his home at the age of seventy-three.

Dr. Caire graduated from Tulane, in pharmacy, in 1889 and from the medical school in 1892. From that time on he practiced in New Orleans with skill and success. He is survived by a son, Dr. Arthur Caire, Jr., and a daughter, Mrs. George P. Montagnet.

A TRIBUTE TO DR. ARTHUR CAIRE, SR.

A great man has been called to his reward, after fifty years of unselfish devotion to his profession and the people of New Orleans.

Some doctors achieve fame and a great name by discovering some new line of treatment, some new drug, something new in the line of surgery or by articles written in the journals. He did none of these but he won fame in the hearts of thousands of the people of New Orleans by a lifetime of sacrifice and devotion to the relief of their pains.

With his passing goes one of the last of the old family doctors who not only looked after his patients when they were sick but was always ready to listen to and advise them in times of trouble.

In the twenty years that he and I had offices together I never knew him to speak unkindly of anyone.

The people of New Orleans have lost a great physician, and the profession one of its oldest and best members. I have lost a long and very dear friend.

Jos. D. Martin, M. D.

RECENT DEATHS

Four members of the State Medical Society have recently passed away.

On June 13 Dr. Douglas Culpepper McBride, of Alexandria, a member of the Society for twenty years, died from a stroke after an illness of two months. He was in his forty-eighth year.

Dr. Luther Archibald Youngs, of Paradis, born in 1878, passed away on the fifteenth of June.

Dr. Joseph T. Abshire, of Kaplan, who was born in 1868, graduated in medicine in 1889 and a member of the Society for twenty-six years, died on the twenty-second of June.

Dr. John James Haydel, of Plaquemine, who graduated from Tulane in 1901, died on June twenty-fifth.

WOMAN'S AUXILIARY

Louisiana State Medical Society

OFFICERS

President—Mrs. Aynaud F. Hébert, New Orleans.

President-Elect—Mrs. Clarence B. Erickson, Shreveport.

First Vice-President—Mrs. H. O. Barker, Alexandria.

Second Vice-President—Mrs. Cecil O. Lorio, Baton Rouge.

Third Vice-President—Mrs. B. L. Cook, Minden.

Fourth Vice-President—Mrs. R. W. O'Donnell, Monroe.

Treasurer—Mrs. Daniel J. Murphy, New Orleans.

Recording Secretary—Mrs. Rhodes Spedale, Plaquemine.

Corresponding Secretary—Mrs. Chas. R. Hume, New Orleans.

The National Meeting in Cleveland

At the annual meeting of the Woman's Auxiliary to the American Medical Association in Cleveland, June 2-6, the total registration was 1,400, including 150 delegates, 29 alternate delegates, 47 members of the National Board, 569 members and 605 guests. The registration at the annual meeting in New York last year was 1,321. The president, Mrs. V. E. Holcombe, Charleston, W. V., reported that the total enrollment of members in the Auxiliary was 27,982, which represents a steady growth through the years; in 1934 the membership was only 12,857.

In her president's message Mrs. Holcombe reviewed the activities of the Auxiliary during the last year and pointed out some of the important services that the groups are rendering in various states. Ohio, a newcomer to the ranks of the Auxiliary, already has more than 1,500 members in its first year. Mrs. Holcombe, during the year of her presidency, appeared on various programs in thirty-two states, including state and county auxiliary meetings and many lay gatherings. Owing to conflicting engagements and demands of other duties, she was unable to accept invitations from the remaining states of the union. The growing appreciation of the work of the Auxiliary by some state medical societies, she said, is evidenced by the fact that they furnish funds for carrying on various auxiliary projects.

The president-elect, Mrs. Roscoe E. Mosiman, Seattle, in her inaugural address said that "our obligation involves the education of the lay woman as well as the doctor's wife in those endeavors that make for a better health environment;" that Hygeia, the Health Magazine, is the finest instrument available for creating confidence in and appreciation for scientific medicine. A wider distribution of Hygeia in the public schools may in time greatly simplify the problems of health education. The president-elect suggested that subjects particularly pertinent to home defense be included in auxiliary programs this year, including problems of food conservation, an adequate diet for the civilian population and recreation projects. The practical application of knowledge along these lines which has been gained since the last World War has great possibilities with respect to home defense. The Auxiliary should assume at all times and under all conditions its share of responsibility for safeguarding the ideals of American medicine.

The Auxiliary voted unanimously to offer the following concrete plan to the Committee on National Defense of the American Medical Association:

1. To establish a housing registry in cities near military camps, with a list of graduated rentals for families of doctors who are stationed in the camps.

2. To provide some type of recreation for doctors and families and to help them in becoming oriented in their new environment.
3. To inform doctors when and where local medical society meetings are held and invite them to attend, thus providing for them a continuous contact with the activities of organized medicine.
4. To encourage doctors and their wives to keep in contact with their home medical societies and auxiliaries.
5. To encourage the home medical society and auxiliary to keep a record of the whereabouts of its members who are in the service of the United States Government and the defense setup.

Following are the newly elected officers of the Woman's Auxiliary to the American Medical Association:

President—Mrs. Roscoe E. Mosiman, Seattle.

President-elect—Mrs. Frank Haggard, San Antonio, Texas.

First Vice-President—Mrs. John Bauer, Brooklyn.

Second Vice-President—Mrs. A. E. Anderson, Fresno, California.

Third Vice-President—Mrs. H. E. Christenberry, Knoxville, Tenn.

Fourth Vice-President—Mrs. P. R. Urnston, Bay City, Mich.

Recording Secretary—Mrs. Samuel Flowers, Middleboro, Ky.

Treasurer—Mrs. David W. Thomas, Lock Haven, Pa.

Directors for one year—Mrs. V. E. Holcombe, Charleston, W. Va.; Mrs. Fred C. Oldenburg, Cleveland; Mrs. Eben J. Carey, Wauwatosa, Wis.; and Mrs. Carlton F. Potter, Syracuse, N. Y.

Directors for two years—Mrs. John B. Farley, Pueblo, Colo.; Mrs. James P. Simonds, Chicago; and Mrs. W. K. West, Oklahoma City.

Chairmen of Standing Committees

Archives—Mrs. Charles E. Sears, 2340 Atlantic Avenue, Atlantic City, N. J.

Finance—Mrs. Harold F. Wahlquist, 129 West Forty-Eighth Street, Minneapolis, Minn.

Historian—Mrs. John J. Ryan, 2153 Iglehart Avenue, St. Paul, Minn.

Hygeia—Mrs. George R. Dillinger, French Lick, Ind.

Legislation—Mrs. Jesse D. Hamer, 1819 North Eleventh Avenue, Phoenix, Ariz.

Organization—Mrs. John Bauer, 984 Bushwick Avenue, Brooklyn.

Parliamentarian—Mrs. Robert E. Fitzgerald, 1761 Church Street, Wauwatosa, Wis.

Press and Publicity—Mrs. George H. Ewell, Editor of Bulletin, 721 Seneca Place, Madison, Wisconsin.

Circulation Manager—Mrs. Charles H. Werner, 531 North Twenty-Fourth St., St. Joseph, Missouri.

Program—Mrs. William Hibbits, 2524 Wood Street, Texarkana, Texas.

Public Relations—Mrs. P. Dwyer, 165 Sixth Street, Renovo, Pa.

Revisions—Mrs. Eustace A. Allen, 18 Collier Road, N. W., Atlanta, Ga.

Supplies—Mrs. J. E. Purdy, 327 Nineteenth Street, N. W., Canton, Ohio.

Hygeia—Mrs. George R. Dillinger, Chairman, French Lick, Ind.

Western Region—Mrs. Leonard Brewer, Missoula, Mont.

Southern Region—Mrs. W. W. Fowler, 920 Monett Street, Norman, Okla.

Eastern Region—Mrs. H. V. Thomas, 511 Stanley Avenue, Clarksbury, W. Va.

North Central Region—Mrs. R. L. Novy, 2910 Iroquois Avenue, Detroit.

The auxiliary voted to confer honorary membership on:

Mrs. Willard C. Bartlett, St. Louis.

Mrs. Franklin P. Gengenbach, Denver.

Mrs. V. E. Holcombe, Charleston, W. Va.

Mrs. John O. McReynolds, Dallas, Texas.

Mrs. Samuel Clark Red, Houston, Texas.

Respectfully submitted,

Mrs. Jules Myron Davidson,
Chairman, Press and Publicity.

BOOK REVIEWS

Physical Diagnosis: By William Nance Anderson, B. Sc., M. D. Philadelphia, Lea and Febiger, 1940. Pp. 424. Price \$4.75.

Written by an Associate Clinical Professor of Medicine at the University of Southern California School of Medicine, this book is verbose, repetitious, and suffers from a lack of careful organization. Judicious balance is absent, as illustrated by more than a page being devoted to the technic of gastric analysis and by the statement that for hospital patients there should be a routine order requiring that every emesis be analyzed for free hydrochloric acid. Descriptions of many findings are incomplete; for example, Koplik spots are mentioned as an early sign of measles but nothing whatever is said about their appearance or how they differ from other lesions of the mucous membranes. Throughout the text the author has recorded his impressions as if they were established facts, whereas in truth issue might be taken with many.

The illustrations are entirely too few (92 in all, as compared with 464 in Major's text of similar size) and in addition are poorly chosen and unimpressive. There is no bibliography.

This work in no way compares with such standard texts as Norris and Landis, and Cabot, nor with the more recent one of Major.

EDWARD MATTHEWS, M. D.

The Art of Anesthesia: By Paluel J. Flagg, M. D., 6th ed. rev. Philadelphia, J. B. Lippincott Company, 1939. Pp. 491. Price \$6.00.

The author writes from an extensive experience covering a period of many years which is clearly reflected in the contents of the book. Considerable attention is devoted to anesthesia from the point of view of the patient, which emphasizes the relationship of the anesthetist in establishing a proper psychologic as well as physical evaluation and preparation of the patient.

One wishes for more description of spinal and local anesthesia as well as for discussion of intra-

venous agents in anesthesia. There is much in this work which should be of value to the surgeon as well as to his most valuable aide, the anesthetist.

CHARLES MASON, M. D.

The Treatment of Diabetes Mellitus: By Elliot P. Joslin, A. M., M. D., Sc. D., Howard F. Root, M. D., Priscilla White, M. D., and Alexander Marble, A. M., M. D. 7th ed. Philadelphia, Lea and Febiger, 1940. Pp. 783. Price \$7.50.

The seventh edition of Joslin's *Treatment of Diabetes Mellitus* represents for the first time a collaborative effort on the part of Joslin and his associates. So much work has been advanced since the advent of the insulin era that a thorough evaluation of the different phases of diabetic research and treatment cannot be adequately handled by one man. Root, White and Marble have helped considerably in the major revision of this standard book.

As in the past, the statistical method is used throughout the book. However, one has the satisfaction that this compilation has been done in conjunction with a large life insurance organization of which the work is a major activity.

There are a few new chapters such as syphilis and allergy in diabetes, by McDaniel. The chapter on pregnancy in diabetes, by White, is a notable contribution. She has done serum prolan estimations after the method of Smith and has reported a lessening in the incidence of toxemias and complications of pregnancy formerly seen in diabetic mothers after treatment with estrogens was instituted. It may be cited, however, that this work has been challenged by some workers.

The incidence of vascular disease in diabetes commands a prominent place in this book. As before, Joslin and his associates lean heavily on the theory of a definite diabetic taint in this direction. That such a conclusion is not wholly warranted has been brought forth quite strongly recently.

The prominence of arteriosclerosis in diabetics may, after all, be more apparent than real, mainly for the reason that insulin has made possible a longer life for the diabetic. Statistics that are not adequately controlled by normals, may continue to perpetuate this opinion.

In the treatment of diabetic acidosis, Joslin and his collaborators still hold to the conservative trilogy of treatment; (1) fluids; (2) salt, and (3) insulin. As before he reserves no place for alkalies. This opinion is not shared by others who have found the alkalies, especially sodium bicarbonate, very efficacious and almost spectacular in those cases of severe acidosis where it is used. In fact, the release from the comatose state after intravenous administration of properly prepared solutions of sodium bicarbonate can be compared to that of the release from hypoglycemic coma by the use of glucose. Certainly this alkali deserves wider use in properly selected cases.

With the accounting of these reservations this book still remains the most authoritative and comprehensive treatise in the English language, and deserves a place on the bookshelf of anyone interested in metabolic work.

ROBERT A. KATZ, M. D.

Neoplastic Diseases: A Treatise on Tumors: By James Ewing, A. M., M. D., Sc. D., LL. D. 4th ed. rev. Philadelphia, W. B. Saunders and Company, 1940. Pp. 1160, illus. Price \$14.00.

This text represents the latest edition on Neoplastic Diseases by America's foremost authority on neoplasia. Nothing finer has been written in the English language on this subject. The first, second, third and fourth editions have appeared in the years 1919, 1922, 1928 and 1940 respectively. Twelve years have elapsed between the third and present edition. In this interim much has been added to our store of knowledge on malignant diseases from the standpoint of genetics, chemistry, physiology, experimentation and certain phases of treatment. This has made it necessary for Ewing to revise completely many chapters of the text. Many new contributions are added, still the present edition so far as total number of pages and illustrations are concerned is little increased in number over the previous edition. This has been accomplished by omitting old material which was mainly of historical interest. Likewise discussions of debatable tumors have been eliminated. A revised classification of bone tumors based on histogenesis is offered. Recognition of sub-groups is based on pathologic anatomy, since this plan lends itself to the practical needs of the surgeon, radiologist and pathologist. The author discusses carcinoma arising from pulmonary alveoli. This possibility may be subjected to considerable discussion and doubt since certain modern histologists have insisted that the alveolar walls are bare and without an epithelial lining. It is especially pleasing to note that a new and modern classification of ovarian tumors is of-

fered. The particular groups of ovarian tumors arising from embryonic rests and first described by Meyer in 1931 are thoroughly discussed. Unfortunately the text lays little importance on special staining methods as a means of differentiating on histopathologic basis the more complex neoplasms.

The photographic reproductions are of good quality in most instances. Additional microphotographs, however, would be helpful, especially in many of the tumors which present different histologic patterns but which have a common histogenesis. This could be accomplished by a curtailment of the large number of photographs of gross specimens which in many instances contribute little towards the differential pathologic diagnosis. An ample and extensive bibliography, although some of the references are old, is arranged in the back rather than following each page or chapter.

H. J. SCHATTENBERG, M. D.

Textbook of Pathology: By W. G. MacCollum. 7th ed. rev. Philadelphia, W. B. Saunders Co., 1940. Pp. 1302, illus. Price, \$10.00.

This is the seventh edition of one of the finest textbooks of pathology in the English language. The style as in previous editions is clear and readable. Stress is continually placed on the causes of disease and their effects on bodily functions. The distinguished author has revised his book in the light of the developments since the last edition of the text, four years ago, and has therefore made it of still greater use to the medical profession.

J. ZISKIND, M. D.

Mosquito Control: Practical Methods for Abatement of Disease Vectors and Pests: By William Brodbeck Herms, Sc. D., and Harold Farnsworth Gray, Gr. P. H. New York, The Commonwealth Fund, 1940. Pp. 317. Price, \$3.50.

This manual covers in an orderly and comprehensive manner an excellent review of the subject. There is presented a discussion of the nature and extent of the mosquito problem, its economic and public health importance, and considerable detail as to control methods. Without sacrificing technical soundness and scientific accuracy the authors discuss, in language comprehensive to persons without education in science, the biologic principles upon which control must be based; and describe in detail practical application of a large number of different control methods over a wide range of geographic and topographic variations in terrain and breeding areas.

The experience of authorities in various parts of the world have been drawn upon freely to supplement the thirty years of the authors' experience.

Although the book is designed primarily for the use of men actually engaged in mosquito abatement work, it would serve as an excellent textbook and reference manual.

J. H. O'NEILL, M. D.

Recent Advances in Endocrinology: By A. T. Cameron, M. A., D. Sc. (Edin.), F. I. C., F. R. S. C. 4th ed. Philadelphia, The Blakiston Company, 1940. Pp. 432. Price, \$5.00.

Endocrinology today occupies a large part of current medical literature. To review this material is such a monumental task that it is virtually impossible to include all recent advances in a small volume of 432 pages.

Nevertheless, the author has included all significant advances in endocrinology with brief illustrative case reports. The biochemical and physiologic aspects are emphasized at the expense of the clinical. Revisions of the chapters on the gonads and on the pituitary gland have endeavored to keep up with the rapid additions to knowledge of these glands.

This edition is a welcome review and reference. However, the reader for detailed information must refer to the excellent bibliography included with each subject.

JOHN C. WEED, M. D.

Textbook of Pediatrics: By J. P. Crozer Griffith, M. D., Ph. D., and A. Graeme Mitchell, M. D. 3d ed. rev. and reset. Philadelphia, W. B. Saunders Co., 1941. Pp. 991. Price, \$10.00.

So many changes have been made in this third edition of a standard pediatric textbook that the usual brief and terse note on a reviewer calling attention to another edition of a well known text is not applicable here. It is in reality a new book, with a new title (formerly "The Disease of Infants and Children").

One of the very outstanding innovations in the text has been the assistance given to the authors by many specialists both in and outside the field of pediatrics. It is now well recognized that pediatrics is hardly a specialty, but is rather the practice of general medicine in the young. On account of this fact it becomes evident that no one man can possibly be as authority in all of the various branches and ramifications of pediatrics. The help given to and gratefully acknowledged by the authors is a definite asset to the book and certainly adds a certain degree of prestige to it.

Another change in the text is the omission of a bibliography as the authors have pointed out, "it is impossible to include a complete bibliography for each subject" and "an incomplete one would be only a gesture." A textbook after all is for reference itself, and certainly only a few of those who read such a book, spend much time in studying the bibliography.

Several chapters have been added in this edition, such as "Mental and Emotional Development and Mental Hygiene", and "Pediatric Institutions and Organizations."

Many of the illustrations have been carried over from the former editions, and although several new ones have been added, there is still a need for more of them and for clearer photography.

H. P. MARKS, M. D.

The Therapy of the Neuroses and Psychoses: By Samuel Henry Kraines, M. D. Philadelphia, Lea & Febiger, 1941. Pp. 512. Price, \$5.50.

Nowhere is there a clearer example of the excellence of American psychiatric thought, theory, and practice than appears in this brilliant, impressive, and effective book on *The Therapy of the Neuroses and Psychoses*. Its teachings are potent and economical, the specialist's knowledge being distilled into a lucid account of what the well-trained physician should know.

The volume consists of seventeen topical sections, Those which especially appealed to and impressed me are the chapters entitled "Sex Drives"; "Stress as a Determining Factor"; "Characteristic General Attitudes and Their Treatment"; "Psychoanalysis and Related Schools."

Section V—"Sex Drives"—is incomparable. It is not stating it too strongly to say that thorough understanding of its doctrines is essential to successful psychiatric procedure. The description of the mechanism of coitus is unique and of inestimable importance. Undoubtedly, far too few physicians understand it in this light.

The treatise was prepared more particularly to be of help to the general practitioner or the non-psychiatric specialist. Not a great many such physicians will find themselves equipped and immediately able to utilize and apply the material in Chapters VI, VIII, X, and XI.

This work of Kraines is eminently authoritative and contains a vast amount of valuable information. It will fit nicely into any medical library. It will greatly enrich the knowledge and broaden the experience of those who properly use it.

C. P. MAY, M. D.

Heart Failure: By Arthur M. Fishberg, M. D., 2d ed. rev. Philadelphia, Lea & Febiger, 1940. Pp. 829. Price, \$8.50.

The fact that this publication was indicated by exhaustion of the first edition emphasizes the appreciation of Fishberg's work. The revision detracts none from the evaluation of previous work but rather stands as a supplement and is as praiseworthy in its thorough presentation of all additional valuable work done on heart failure. It is remarkable that in 829 pages devoted exclusively to cardiac failure there has been close adherence to the subject illustrating the thoroughness of the study.

There is no speciality that does not have its relationship to cardiovascular failure considered. The functional as well as the organic are amplified. The book is packed with information, not only technical in nature but also broad in character, and is most instructive for the cardiologist, for the internist or for anyone who is in actual contact with myocardial disease. The measurement and evaluation of the fundamental circulatory variables in health and disease, the differentiation of central and peripheral failure, the clinical types of heart failure with relation to their etiologic background, are covered in minute detail. The entire subject is simplified chiefly by explaining in practical detail, physiology and pathology, and by emphasis accentuated diagnostic points of importance. Therapy is reviewed, evaluated and applied to each specific type of manifestation. It places the clinical side of the issue within the reach of the practitioner who desires to do more than describe digitalis for his cardiac patients.

The text is too well edited to need criticism. The author is so competent and well qualified in his management to this branch of medicine that his work is beyond doubt the most authoritative publication on the subject.

GORDON MCHARDY, M. D.

The Anatomy of the Eye and Orbit: By Eugene Wolff, M. B., B. S. (Lond.), F. R. C. S. (Eng.), 2nd ed. Philadelphia, The Blakiston Co., 1940. Pp. 374. Price, \$7.50.

The second edition of this excellent work renders a distinct service to ophthalmologists who, generally speaking like myself, are anatomically lazy. It has helped me visualize more rapidly and accurately the exact location of things gone hay-wire in the visual mechanism.

In 370 pages the author has presented an ample, simple and practical understanding of the subject. Systematic arrangement, a comprehensive table of contents, and a complete alphabetical index make the finding of desired information exceptionally easy. Four types of print facilitate comparisons of importance; 250 illustrations are mostly schematic in black and white; they really illustrate. Rather inflammatory in shade are the colored illustrations; better that however, than anemic. The concluding chapters on the Development of the Eye and Comparative Anatomy revealed to me an almost pleasant way of reviewing these difficult, uninteresting, neglected, but important subjects. For those desiring to play hide and seek with the less practical phases of the subject, the bibliography offers ample clues.

In my opinion, no book has yet been written on this subject which combines comprehensiveness, practicality and simplicity to a greater degree than

the *Anatomy of the Eye and Orbit* by Eugene Wolff.

CHAS. A. BAHN, M. D.

The Extra-Ocular Muscles: By Luther C. Peter, A. M., M. D., Sc. D., LL. D., 3rd. ed. rev. Philadelphia, Lea and Febiger, 1941. Pp. 368. Price, \$4.50.

The short interval between the second and third editions of this informative and well arranged work, speaks for itself. It shows what ophthalmologists really thought of the author's past efforts.

Few new ideas have been incorporated in the third edition. Few new ideas on this subject have gotten past first base during the past five years. The author has wisely omitted weird applications whose practical uses appear as vague as the future of an unborn child. In orthoptics for example, some of the peculiar procedures mentioned in the literature seem better adapted to increase the patient's financial imbalance than to cure that which may exist in the ocular muscles.

It is much easier to tear down than build up, especially in the abstracting of medical works. Students of ophthalmology, young and old, will make no mistake in reading, and re-reading the work. It is the most complete and orderly presentation of this subject yet written by an American.

CHARLES A. BAHN, M. D.

Essentials of the Diagnostic Examination: By John B. Youmans, B. A., M. S., M. D. New York, The Commonwealth Fund, 1940. Pp. 417; 36 fig.; 11 tables. Price \$3.00.

The author states in the preface to this manual that "No attempt has been made to treat exhaustively the subjects of history taking and physical diagnosis, and the present volume is in no sense a textbook on physical diagnosis." The same comment could be made in respect to the section dealing with laboratory procedures, which is additionally simplified by the description of only a single method for each test.

The book, the author further states, is essentially "an expansion of the outlines" used in the courses in physical diagnosis and clinical laboratory methods which he has conducted for practitioners for the past ten years. To this method of presentation at least one objection can be raised. Generally speaking, much that is of the greatest value is lost when a subject is reduced to outline form. Only within very narrow limits is it possible to carry into the printed version the personal influence which a good teacher has on his students, both through his manner of exposition and through the example of his conduct at the bedside.

The greatest field of usefulness of outline presentations would seem to be limited to students

who are approaching a special phase of medicine for the first time, of course under proper guidance. Such a presentation might conceivably be of use also to practitioners who have already studied a subject under proper supervision and who might wish to review it systematically. A book of this type, however, does not fill the real need which in the reviewer's opinion exists—and has not yet been met—for a treatise on the detailed, orderly examination of systems, e. g., the gastrointestinal, pulmonary and skeletal systems. The more obscure the condition, the more does diagnosis become an actual problem in research, and under such circumstances even physicians with good fundamental training in physical and laboratory diagnosis need all the help possible.

That sort of assistance is not likely to be provided by an over-simplified text such as this. The book is clear and concise, and it includes the important principles of physical diagnosis, as well as certain details of the subject. The section on laboratory diagnosis is also fairly adequate. On the other hand, there is nothing to distinguish the book from several similar texts now available.

ROBERT C. LOWE, M. D.

As I Remember Him: By Hans Zinsser. Boston, Little, Brown & Co., 1940. Pp. 443. Price \$2.75.

In view of the fact that this book has been widely reviewed in both the medical and lay press, it is unnecessary to consume space in this journal for another extended review such as this publication deserves. Suffice it to say, it is one of the finest medical autobiographies of our day. It is not only crammed with factual data but is beautifully and entertainingly written. It is recommended to those who in the press of other activities have not as yet had the opportunity to read it.

B. B. WEINSTEIN, M. D.

Diseases Transmitted from Animals to Man: By Thomas G. Hill, Ph. D. Springfield, Charles C Thomas, 1941. Pp. 403. Price \$5.50.

The second edition of this excellent book has been extensively revised and considerable new material added. Hull has, in this edition, asked some fourteen contributors to assist him in the preparation of the volume. Two of these contributors are from New Orleans: G. W. McCoy and E. C. Faust. Other contributors include such men as Dyer of the U. S. P. H. S., Klauder, Weidman, as well as several well-known veterinarians.

The book is filled with information which would be of service to the doctor of medicine and of veterinary medicine, and to public health officials. It should be of great interest to lay persons who are interested in individual and public health problems. It is for these people that the book of course

has been primarily written. This can be well seen in the statement under rabies of how to treat dog bites: "First—call a physician." This statement does not imply, however, that the physician cannot get a tremendous amount of information condensed in a relatively few pages which would necessitate an extensive survey of the literature were he to attempt to obtain facts such as are contained in this excellent book. It is to be recommended most highly.

J. H. MUSSER, M. D.

Biochemistry of Disease: By Meyer Bodansky, Ph. D., M. D., and Oscar Bodansky, Ph. D., M. D. New York, The Macmillan Company, 1940. Pp. 684. Price \$8.00.

"Biochemistry of Disease" by the brothers Bodansky is a well written survey and critical review of the strides made in biochemistry as related to modern clinical medicine. The plan of the book follows that of a systematic presentation of the chemical aspects of the various diseases arranged according to clinical entities. The authors have tried to place before the reader a volume wherein he may survey quickly and adequately the contributions that modern physiologic chemistry have made to the study of disease. The book is not a synopsis or outline, but a well integrated volume of seventeen chapters. The chapters on diseases of the blood, heart, disorders of digestive, liver, and biliary tract are especially well presented as are also those on metabolism and nutrition. There is a very adequate bibliography. This book is a definite contribution to be read with profit.

ROBERT A. KATZ, M. D.

The Endocrine Function of Iodine: By William Thomas Salter. Cambridge, Mass., Harvard University Press, 1940. Pp. 351. Price \$3.50.

This book is the first of a series of Harvard University Monographs in Medicine and Public Health. Most of the material is concerned with the relationship between iodine and the functions of the thyroid gland. Other subjects discussed are: (1) endocrine balance between the thyroid and other glands of internal secretion; (2) iodine metabolism as studied with radioactive iodine; (3) neurologic influence upon the thyroid function. One chapter is devoted to clinical problems in thyroid disease, and an appendix of methods found suitable for the determination of iodine is included.

Many of the references are recent because the rapid improvement in the determination of blood iodine has stimulated much research on the relation between blood iodine values and thyroid disease.

A publisher's note states that this volume will

be of interest to surgeons, physiologists, biochemists, pharmacologists and experts in nutrition. It will be of special interest to those interested in the theory of thyroid disease.

F. W. BERNHART, Ph. D.

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THE TREATMENT OF CHRONIC SUPPURATIVE OTITIS MEDIA WITH THE USE OF THE ENDAURAL APPROACH FOR THE RADICAL MASTOIDECTOMY*

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In the treatment of chronic suppurative otitis media we aim to remove the danger of intracranial extension, to help the hearing and to end the chronic aural discharge. From the patient's point of view the hearing may be the most important consideration when both ears are affected or when the diseased ear has the better hearing. In this discussion I wish to emphasize methods of preserving and improving the hearing in cases of chronic suppurative otitis media.

To be effective the treatment of chronic discharging ears must be based on a clear understanding of the etiology and of the exact pathology in each case that is responsible for the chronicity of the otorrhea.

PATHOLOGY

Chronic suppurative otitis media arises in one of two ways. It may come on insidiously in a previously intact drum membrane as shall be described later on. More often, chronic discharging ears are the result of a special variety of acute suppurative otitis media known as acute necrotic otitis media. The distinction between the ordinary acute suppurative otitis media and acute necrotic otitis media is quite important because, for practical purposes, the ordinary acute suppurative otitis media

never becomes chronic and always heals, generally with normal hearing. On the other hand, acute necrotic otitis media frequently does not heal but ends in a chronic discharging ear, or if it does heal there is usually some impairment in hearing. A review of the pathology of the two types of acute otitis media will show clearly the sharp distinction between them.

The vast majority of acute otitis medias are the ordinary variety. They begin as an inflammation of the mucosal lining of the eustachian tube, middle ear and mastoid air cells. Inflammatory thickening and edema of the mucous membrane is accompanied by an outpouring of serum and by the migration of polymorphonuclear leukocytes from the dilated capillaries into the mucosa and then into the lumen of the middle ear and mastoid cells to form the pus. The drum membrane is opened by paracentesis or it perforates spontaneously, but in either event the perforation remains only just large enough to allow the pus to escape and as soon as the infection has run its course, in one to three weeks on the average, the perforation closes and the hearing returns to normal. In more severe infections, progressive thickening of the mucosal lining of the middle ear and mastoid cells begins to obstruct the free drainage of pus from the mastoid cells. The increased pressure of this retained pus and the marked increased vascularity with venous stasis results in a local acidosis which dissolves the calcium from the mastoid cell partitions. This process of decalcification is called halisteresis. Osteoclasts remove the softened bone until the discrete mastoid air cells coalesce or melt together into a large cavity filled with hypertrophied mucosa,

*The Raymond Hume Address, presented before the Louisiana-Mississippi Ophthalmological and Otolaryngological Society at New Orleans, Louisiana, April 5, 1941.

granulations and pus. When this coalescent mastoiditis is opened about the third or fourth week of the otitis media, the bone is found to be markedly softened due to the decalcification that has occurred. The mastoid cells are partly coalesced into cavities filled with pus and granulations and the lateral sinus or the dura may be found lying exposed in this cavity. But there is no true necrosis in this mastoid; the destruction of bone has been an orderly physiologic process. The bone that is being removed is living bone and the moment the pressure of the retained pus is released the process of decalcification and bone removal is reversed to one of bone formation and calcification. The purpose of the simple mastoid operation is not to remove dead bone or necrotic tissue, but is to provide perfect drainage from the obstructed cells by a complete anatomic mastoidectomy. Although the operative findings are often erroneously described as "necrosis," there is actually no true gross necrosis of soft tissue or bone in acute coalescent mastoiditis.

Acute suppurative otitis media, even if complicated by a coalescent mastoiditis that goes unoperated, tends to clear up spontaneously provided the patient does not die of an intracranial complication. Operation is done to lessen the danger of intracranial extension and not to prevent a chronic otitis media, because the ordinary acute suppurative otitis media does not become chronic. Even when the suppuration continues for months, the perforation in the drum membrane does not enlarge but always remains just large enough to allow the pus to escape, and when healing finally occurs the drum membrane heals with hardly a scar and with normal hearing.

In marked contrast to the ordinary acute suppurative otitis media is acute necrotic otitis media. This condition is seen only in infections of high virulence that occur in patients with lowered resistance as the result of a systemic infection such as scarlet fever, measles or influenza. However, the majority of otitis medias that occur in scarlet fever and measles are the ordinary variety and only a minority take the necrotic

form. Acute necrotic otitis occurs most often in young children with scarlet fever. The first evidence in necrosis is seen in the drum membrane which perforates spontaneously relatively early in the otitis, following which the perforation rapidly enlarges as the drum membrane becomes necrotic and sloughs away. The drum membrane may be partially or completely destroyed within a few hours or days. This is in sharp contrast to the ordinary acute suppurative otitis media where the perforation always remains pinpoint in size and this difference allows recognition of an acute necrotic otitis quite early in the infection. The necrosis with sloughing is due to a thrombosis of the small blood vessels resulting in prompt death of the tissue—a localized gangrene. The mucosa of the middle ear may likewise become necrotic and slough away, leaving bare white bone. In the very severe cases of acute necrotic otitis, portions of the adjacent bone may become necrotic and sequesterate. The sulcus tympanicus, the ossicles and even the mastoid cells may become necrotic. At operation, the dead necrotic mastoid cells show up in sharp contrast to adjacent living coalescent mastoid cells, the coalescent cell walls being softened and very vascular while the necrotic bone is hard, white and bare without a blood supply or adherent granulations. If sufficient time has elapsed before operation there will be a sharp line of demarcation where the dead bone is being separated off as a sequestrum from the surrounding live bone.

In the milder cases of acute necrotic otitis the necrosis is confined to the drum membrane where a large, often kidney-shaped, central perforation is found, but the margins of the drum membrane and the mucosa of the middle ear remain intact. Some of these large central perforations heal and close by the formation of a thin scar. In many cases, however, the perforation remains open with a chronic discharge due to debris and saprophytic infection which have gotten into the middle ear through the large perforation and which act as a constant irritant. Since the dis-

charge in these cases is coming from the mucosa of the middle ear it is always mucoid in character. When first seen there may be a foul odor but with cleanliness and the use of an antiseptic the odor quickly disappears and the discharge becomes odorless. In this type of chronic suppurative otitis media there is no tendency to bone invasion and no danger of intracranial extension. The physician, therefore, is concerned only with stopping the discharge and improving the hearing. Boralcohol drops twice daily for a week may be used to eliminate the foul odor. Thereafter the dry treatment will give the best results. Dry wipes are followed by the insufflation of boro-iodine (Sulzberger) powder every few days until the ear is dry.

Once the ear is dry an attempt is made to improve the hearing by closing the perforation. The application of a patch covering the perforation will often give a surprising hearing gain. The normal migration of the outer layer of the epithelium of the drum membrane will carry the patch off the drum membrane and on to the posterior canal wall in two to four weeks so that the patch needs to be replaced from time to time. The presence of a well placed patch, however, has a definite stimulating effect on the margins of the perforation and in many cases the perforation will gradually close. I have found that cigarette paper moistened with 1 per cent phenol in glycerine makes the best patch. A piece of paper about five or six mm. square is carried into the canal with a tiny pair of alligator forceps and is then gently pressed against the drum membrane with a tiny ear hook and a tiny cotton applicator moistened in the 1 per cent phenol-glycerine. If the hearing is going to be benefited by closing the perforation the patient will instantly notice the improvement the moment the patch is applied and hearing tests will confirm the definite gain in hearing. Gently traumatizing the edges of the perforation by wiping with a tiny cotton applicator or by the application of trichloroacetic acid before applying the paper patch acts as an added stimulant to closure. Besides improv-

ing the hearing, an advantage in closing these dry central perforations is that the susceptibility to recurrences of the mucoid discharge from getting water into the ear or from upper respiratory infections is thereby greatly reduced.

CHOLESTEATOMA

In the more severe cases of acute necrotic otitis media not only the central portion of the drum membrane but the annulus and sulcus tympanicus slough away along with the mucosa of the middle ear spaces. Healing occurs in these cases by the ingrowth of stratified squamous epithelium from the outer canal to line the denuded middle ear. If the skin grows up into the attic its desquamating outer layers will collect as masses of whitish debris called cholesteatoma. Because these cases of cholesteatoma are secondary to an acute necrotic otitis media, they are called secondary acquired cholesteatomas. Saprophytic infection of the debris occurs sooner or later and results in a foul purulent discharge devoid of mucus.

The diagnosis of cholesteatoma depends entirely upon the clinical examination of the ear and careful inspection will show that skin instead of mucous membrane lines the middle ear cavity and extends up into the attic. Irrigation of the attic, washing down the whitish flakes of cholesteatomatous debris confirms the diagnosis. The x-ray is of value for diagnosis only when the cholesteatoma has extended into the antrum and has resulted in a definite concentric enlargement of the antrum.

The treatment of cholesteatoma consists simply in removing the accumulated debris from the cavity in the attic or antrum. In most cases this can be accomplished by irrigating with 95 per cent alcohol through an attic cannula once or twice a week until the ear is clean, dry and odorless. If repeated attic irrigations do not result in a clean, dry and odorless ear we know that we are dealing with a cavity too large and inaccessible to be rendered dry by local treatment. It then becomes necessary to do a radical mastoidectomy, for a cholesteatoma cavity containing moist debris is

actively enlarging and is a potential hazard to life, whereas a dry, clean and odorless cholesteatoma cavity is inactive and harmless. The purpose of the radical mastoid operation is to convert the inaccessible cavity into an accessible one by converting the middle ear, the external auditory canal and the cholesteatoma cavity into one common, easily accessible cavity.

A third type of chronic otitis media may result from an acute necrotic otitis. In these cases a focus of low grade bone necrosis persists long after the acute necrotic process has cleared up. The discharge has a rather characteristic penetrating foul odor that persists in spite of the prolonged use of antiseptics and cleanliness. The perforation in these cases may be central in type, with pink mucosa lining the middle ear. The radical mastoid operation is required to remove the area of bone necrosis which is found most often around the antrum.

These three varieties of chronic suppurative otitis media that have just been described are all secondary to an acute necrotic otitis media. There is another variety of chronic suppurative otitis media that is not preceded by any sort of acute otitis media. In these the chronic discharge begins insidiously and when the ear is inspected the pars tensa of the drum membrane is found to be intact, but there is a perforation in Shrapnell's membrane. The origin of this type of chronic suppurative otitis media has only recently been understood and if you will be on the lookout you will see the earliest stages of the disease in patients who as yet have no ear complaint. As you know, Shrapnell's membrane or the pars flaccida of the drum membrane has no tense fibrous tissue layer to hold it rigid. When there is a negative pressure in the attic, Shrapnell's membrane becomes much more sharply retracted than the pars tensa due to this lack of rigidity and if the negative pressure continues the sharply retracted membrane becomes permanently adherent to the inner wall of the attic. This permanent retraction of Shrapnell's membrane may be caused by pro-

longed occlusion of the eustachian tube by adenoid hypertrophy. It may also occur as a result of an infantile otitis media, perhaps from meconium in the eustachian tube at birth. This infantile otitis interferes with the normal resorption of the embryonic connective tissue that fills the middle ear spaces at birth so that parts of the attic may never become properly aerated. As the embryonic connective tissue becomes fibrosed and contracts, Shrapnell's membrane is drawn sharply inward. Whichever mechanism is at work, the sharply retracted pars flaccida falls into an irregular pit just above the short process of the malleus. If this pit is deep enough, it will become filled with the desquamated cells from the outer epidermal layer of Shrapnell's membrane. The pressure exerted by the enlarging plug of epithelial debris then causes the pit to enlarge. As the pit or sac enlarges, saprophytic infection of the cholesteatoma debris occurs with the onset of a foul discharge. The lining of this cholesteatoma cavity consists of the invaginated Shrapnell's membrane, while the attic perforation leading to the cavity represents the first tiny pit-like retraction of Shrapnell's membrane. This type of cholesteatoma Wittmaack calls the true or genuine cholesteatoma. I prefer the less confusing name of primary acquired cholesteatoma to differentiate it from the secondary acquired cholesteatoma, secondary to an acute necrotic otitis. As long as the cavity in the attic contains moist cholesteatoma, it gradually enlarges and is, therefore, a potential hazard.

The treatment of primary acquired cholesteatoma is the same as of secondary acquired cholesteatoma, namely, mechanical removal of the cholesteatoma debris by attic irrigations. If the cavity is too large to be kept clean, dry and odorless by attic irrigations, a surgical operation is required to render the cavity more accessible. The radical mastoid operation will accomplish this but it also will seriously impair the hearing which may be almost normal in cases where the cholesteatoma sac has not grown down behind the pars tensa, and where the tympanic cavity is normal. In

many persons who require operation the incus has been destroyed, but the hearing may still be close to normal. To preserve this good hearing, the Bondy modified radical mastoid operation is indicated. This becomes especially important when the operated ear is the better hearing ear.

A brief mention of a third type of cholesteatoma should be made, the type which Wittmaack calls primary cholesteatoma. This rare condition is the result of an embryonic epidermal rest that may be located anywhere in the bones of the skull. Cholesteatomatous debris formed by the stratified squamous epithelium of the embryonic rest accumulates and results in a slowly enlarging, smooth, rounded bone defect. There is no connection with the middle ear spaces and, therefore, no infection odor or pus. The condition is usually symptomless and is found accidentally in x-rays of the skull.

There are three more varieties of chronic suppurative otitis media that are occasionally seen. The first is a chronic osteitis of many years' duration that dates from what appeared to be an ordinary acute suppurative otitis media and that is characterized by frequently recurring exacerbations with fever, pain and discharge. The drum membrane perforation is usually tiny and central, and the discharge is mucoid and odorless. The chronicity in these cases is due apparently to the type of infecting organism. Complete surgical removal of the infected bone, usually by a radical mastoidectomy, is required to produce a cure.

Secondly, there are the cases of chronic otorrhea associated with a similar profuse chronic mucoid or mucopurulent discharge from the nasal and sinus mucosa, and often from the bronchial mucosa, on an allergic basis. Control of the underlying allergy will usually result in a cessation of the chronic tenacious mucopurulent aural discharge.

Thirdly are the cases of tuberculous otitis media. Tuberculosis of the middle ear is usually acquired through the eustachian tube, either from infected milk due to the bovine type of organism, or from infected sputum from the lungs due to the human

type of tubercle bacillus. Tuberculous otitis media is characterized by its painless onset, by the insidious onset of a scanty serous discharge, by the hearing which is impaired more than would be expected by the visible pathology, and by the perforation in the drum membrane which tends to enlarge and which may be multiple in the early stages. Sequestration of small areas of bone occurs commonly, and the granulations in the middle ear are pale and fibrous. Demonstration of the tubercle bacilli by smear and guinea pig inoculation confirms the diagnosis of tuberculous otitis media.

TYPE OF OPERATION

For three years I have been using the endaural approach for all radical and modified radical mastoidectomies. The endaural approach had been used from time to time for many years but inadequate exposure to the operative field made the endaural operation awkward, difficult and hazardous. About twelve years ago Lempert devised an extracartilaginous endaural incision by which a more adequate exposure could be secured. The advantages of the endaural approach are the lessened trauma to soft tissue and cartilage, the simplified plastic to the external auditory canal, the simplified after care, and the improved end-results. Lempert described a special type of incision for the radical mastoid operation. I do not use this but instead I use the incision which he described for the simple mastoid operation.

TECHNIC

The operator should use a headlight for illumination. An ordinary nasal speculum is used to spread the meatus open. The special Lempert spear-shaped knife should be used. The first incision begins at 12 o'clock at the junction of the hairy and non-hairy portion of the canal and is carried down the posterior canal wall slanting outward to emerge at 7 o'clock for the right ear, 5 o'clock for the left. This incision stops at the edge of the auricular cartilage. The second incision begins at the same point as the first, at 12 o'clock, and is carried directly upward between the tragus

and the auricle to a point midway between the meatus and the upper edge of the auricle. The third incision connects the lower extremity of the first with the upper extremity of the second incision following the anterior border of the auricular cartilage. The three incisions, first outlined, are then deepened to the bone. A flat periosteal elevator is inserted into the first two incisions and the periosteum is elevated over the entire mastoid process. The loosened triangular piece of skin, subcutaneous tissue and periosteum is grasped with a hemostat, freed with scissors from its few remaining shreds of attachment and is discarded. A special self-retaining retractor is then inserted. From this point on the operation is completed the same as through the postauricular incision with the exception of the plastic.

Briefly, the skin of the bony superior and posterior canal wall is carefully separated from the bone and pushed down and forward. The cortex is removed with a gouge beginning in the region of the suprameatal triangle just behind and above the suprameatal spine. As soon as the antrum is entered the extent of the cholesteatoma cavity is determined with a blunt probe and the overhanging cortex is removed with a Kerrison rongeur until all parts of the cholesteatoma cavity are clearly visible. The superior wall of the bony external auditory canal is then thinned down with the curette, working from the antrum and aditus outward. The thinned down bone may be removed with a fine rongeur until the attic, aditus, antrum, middle ear and external auditory canal are one common cavity.

Fine manicure scissors are now used to cut the skin of the superior canal wall so that it can be folded back over the facial ridge. Remnants of drum membrane or ossicles are removed and granulations and softened bone in the middle ear are gently curetted, avoiding the facial nerve and stapes. The completed cavity is carefully cleaned of bone fragments, the skin flap is folded back over the facial ridge and held in place with a small gauze pack, the cavity

is filled with sulfathiazole powder and sterile vaseline is applied to the incision. No sutures are required. The completed cavity should be as small as possible but with all bone irregularities and softenings curetted out, and with no overhangs or inaccessible pockets. The greatest advantage to the endaural approach is that the operation is done through the same opening, that the ear will be observed through the rest of the patient's life, and the inaccessible pockets so frequent after the postauricular radical are, therefore, entirely avoided.

The Bondy modified radical mastoid operation is done exactly the same as the classical radical except that care is taken not to disturb the ossicles and the pars tensa of the drum membrane. The same skin flap is cut to cover the facial ridge and the completed cavity otherwise looks the same.

AFTER-CARE

The after-care is important to a satisfactory result after the endaural operation. On the fifth day the incision which has adhered together must be spread wide open, the packing is removed and the cavity is cleaned of blood clots. Sulfathiazole powder is blown into the cavity. Thereafter the incision must be spread wide open and the cavity dried out every second or third day until it is completely dry and healed, which occurs in four to eight weeks on the average. All postoperative dressings must be done under the strictest sterile precautions.

Bacillus pyocyaneus is frequently found in cholesteatomas and may cause a troublesome, foul, brownish discharge after operation. Cleanliness, air and tincture of merthiolate 1:1,000 are usually effective. The patient returns home as soon as the pack is removed on the fifth day and after his first office visit one week after operation, a piece of sterile cotton is worn in the ear at night and on the street but indoors the ear is left open to the air.

SUMMARY

One hundred consecutive cases of chronic suppurative otitis media seen in office practice were summarized. There were 31

patients with the central type of perforation following an acute necrotic otitis, all treated conservatively. There were 36 patients with secondary acquired cholesteatoma, 12 of whom required radical mastoidectomy. There were seven patients with chronic osteitis, all of whom required radical mastoidectomy. There were 20 persons with primary acquired cholesteatoma, eight of whom required a Bondy modified radical mastoidectomy. There remained a miscellaneous group of six cases, including two of allergic otitis media and two of tuberculous otitis media.

The hearing was definitely improved in 59 per cent of those treated conservatively.

After the radical mastoid operation, the hearing was worse as often as it was improved.

After the Bondy modified radical mastoid operation the hearing was never worse and in 67 per cent it was definitely improved.

The Bondy operation is indicated in cases of primary acquired cholesteatoma requiring operation, to preserve the hearing. This is especially important when the ear operated upon is the better hearing ear.

THE INTERRELATIONSHIP OF GASTROINTESTINAL AND CARDIAC DISEASE*

M. D. HARGROVE, M. D.
SHREVEPORT

The human body is undoubtedly the most perfect machine known to man. In health, its various parts function so smoothly that we are largely unaware of their existence. But, if some part of that highly sensitive organism, because of disease, fails to function properly, it may cause disease in other organs remotely connected or at least may disturb their function. Thus may gastrointestinal and cardiac disease be related. Proper function of the gastrointestinal tract is dependent upon good cardiac function and failure or impending failure of the cir-

culatation is often first manifested by gastrointestinal symptoms. Likewise, disturbed function of the gastrointestinal tract may be manifested by pain similar in character and distribution to cardiac pain or by functional disturbances of the heart as palpitation, premature beats and smothering sensations.

GASTROINTESTINAL SYMPTOMS

Flaxman,¹ in a review of 1,500 cardiac patients, found that 160 (10.6 per cent) had 243 gastrointestinal manifestations. The heart disease in these patients was due to all etiologic factors, such as hypertension, rheumatic fever, coronary artery disease, syphilis, and thyrotoxicosis. He has listed the gastrointestinal manifestations as follows: Epigastric pain, abdominal distress, right upper quadrant pain, vomiting, nausea, belching, diarrhea, obstipation, flatulence, dysphagia, hiccough, and hematemesis. Such symptoms from cardiac patients are not unusual and may appear early or late. Epigastric pain is perhaps the most frequent of gastrointestinal symptoms due to heart disease. It may vary from a mild sensation of epigastric fullness to severe excruciating pain. It is generally not related to meals, though at times aggravated thereby and is not relieved by the usual methods employed. The distress may be due to acute congestion of the liver, from right ventricular failure or to coronary disease. Such a relationship is well illustrated by this rather common occurrence.

CASE NO. 1

Mr. J. E. D., 65 years of age, was seen on October 10, 1935, complaining of epigastric pain and nausea. His illness began on the night of October 8, with pain in the epigastrium attributed to indigestion. The pain persisted during the following day and was associated with nausea. Late in the evening he consulted a doctor, who attributed the pain to indigestion. The pain continued through the night, radiating up under the sternum, to the arms and across the upper abdomen. When seen on the morning of October 10, he still had some epigastric distress radiating up under the sternum. There had been no serious illness in the past, no indigestion, and no symptoms referable to the heart. There was no history of substernal distress on exercise.

*Read before the sixty-second annual meeting of the Louisiana Medical Society, Shreveport, April 22, 1941.

His temperature was 98.4° F., pulse 90, and the blood pressure was 146/90. The heart was not appreciably enlarged, the rhythm was regular, and there were no murmurs. There was slight tenderness in the mid-epigastrium on deep pressure, but the abdomen was otherwise negative. An electrocardiogram showed the ST segments elevated in the second and third leads, with slight inversion of T₂ and definite inversion of T₃. His white cell count was 15,350, with 79 per cent polymorphonuclears. The diagnosis of coronary occlusion with myocardial infarction was made and with appropriate care, he made an excellent recovery.

COMMENT

This is not an unusual occurrence. Coronary disease often manifests itself by epigastric pain, which usually radiates sub-sternally. Frequently there may be doubt about the diagnosis for a time, but with observation and the aid of the electrocardiogram and other laboratory procedures, a definite diagnosis can be made.

The confusion of gastrointestinal and cardiac symptoms is also illustrated by the following case:

CASE NO. 2

Mrs. O., 70 years of age, was seen on January 10, complaining of mild abdominal distress, characterized by some fullness, gas, and loss of appetite. She was a rather obese elderly woman in no acute distress. The blood pressure was 160/90 and there was moderate cardiac enlargement, with a systolic blow at the apex. The rhythm was regular and there were no congestive phenomena. The abdomen was quite fat, but no other abnormalities could be made out. Her symptoms were attributed to a mild gastrointestinal upset. About ten days later, I was again asked to see her for a similar complaint. I was delayed perhaps an hour, and on arriving, found her in acute left ventricular failure. She improved with morphia, rest and digitalization for a few days, but following a second attack, expired about three weeks later from congestive failure and pneumonia. The electrocardiogram showed definite left axis deviation, with slurred and widened (0.12) QRS complexes. ST_{1, 2, 4} were depressed and ST₃ elevated. There were occasional ventricular premature beats.

COMMENT

Undoubtedly the gastrointestinal symptoms present on my first visit were due to her heart and not to primary disease of the gastrointestinal tract. Impaired circulation from old hypertensive disease, with moderate congestion of the gastrointestinal tract probably accounted for the fullness, gas and loss of appetite. Perhaps adequate

digitalization at that time might have prevented or postponed the left ventricular failure which developed about ten days later. Such cases as this are not unusual and illustrate the reciprocal relationship of the symptomatology and function of gastrointestinal tract and heart.

In discussing the relationship of gastrointestinal and cardiac disease we are at once confronted by several pertinent questions. Can chronic heart disease alone produce disease of the gastrointestinal tract or aggravate pre-existing disease? Can disease of the gastrointestinal tract produce chronic myocardial changes in a previously normal heart? Can it aggravate an already existing chronic myocardial state?

Proper function of the gastrointestinal tract is of course dependent upon good cardiac function. Congestion of the abdominal organs occurring in heart failure is always associated with impaired function of these organs but any organic disease present is independent of the congestion due to heart failure. The one exception to this may be found in the liver after long standing chronic congestion in which the liver becomes reduced in size and weight, very firm, of a dark, cyanotic brown color, the capsule thickened, and the surface irregular but rarely nodular. The changes here are due to hepatic fibrosis, beginning in the center of the lobule and thus distinct from Laennec's cirrhosis.

Jaundice, a finding usually associated with abdominal disease, may be due to heart failure. There are three main mechanisms in its production: (1) Impairment of liver function; (2) increase in the production of bilirubin; (3) diminution in blood flow through the liver. But even the presence of jaundice in heart failure does not indicate organic liver disease.

Can disease of the gastrointestinal tract produce chronic myocardial changes in a previously normal heart? It seems very unlikely that chronic myocardial changes can be produced in this way, but that existing chronic myocardial states may be aggravated, seems unquestioned. Gallbladder disease has been considered in this respect

more than any other organ of the gastrointestinal tract. The frequent association of the two diseases in the same patient has helped to focus our attention on them.

RELATION BETWEEN CARDIAC AND GALLBLADDER DISEASE

Tennant and Zimmerman² found a significant association between heart disease in general and gallbladder disease. Breyfogle,³ in a statistical study of 1493 necropsy records, concluded that it indicated a striking and positive association, regardless of age or sex, between gallbladder disease and coronary artery disease when the latter is regarded as the direct cause of death or the primary contributing factor toward death. Bean,⁴ in a study of 300 cases of infarction of the heart, found gallbladder disease present in 47, or 17.5 per cent, of 269 patients. Twenty-one, or 44 per cent, of the cases were in females. He found an absolute correlation with arterial disease, since all with gallbladder disease had both general and coronary arteriosclerosis. He concluded that the high incidence of gallbladder disease and especially of stone formation in this group was another manifestation, as is obesity of a derangement of the lipid-cholesterol metabolism, and that stone formation is not of etiologic significance in arterial disease, but rather is an expression of a fundamental fault which underlies both processes.

The presence of electrocardiographic evidences of myocardial disease in patients with gallbladder disease, which have either reverted to normal or been greatly improved following removal of the gallbladder, has also directed our attention in this direction. Fitz-Hugh and Wolferth⁵ reported six cases with electrocardiographic evidence, chiefly flat or inverted T waves in the first two leads and cardiac symptoms chiefly anginoid in character, that following cholecystectomy showed reversal of the electrocardiographic findings to or approaching normal with improvement in cardiac function. They concluded that not only may gallbladder disease injure the myocardium but that the process, at least to a certain extent, is reversible and that the ma-

jority of patients with the coronary and myocardial types of heart disease, or with symptoms and electrocardiographic findings suggestive of these disorders, who have associated gall stones, are usually greatly benefited by skillful and judicious gallbladder surgical procedures.

White,⁶ in the discussion of a case of gastrointestinal disease complicated by silent coronary disease, said: "It is true that gastrointestinal disease, especially gall stones, may induce functional cardiac and general circulatory disturbances, especially premature beats, paroxysmal tachycardia (even in the form of auricular fibrillation), and vascular collapse but that it can actually and directly produce organic myocardial, endocardial, or coronary disease is extremely unlikely. Heart failure or angina pectoris or electrocardiographic anomalies may, however, be precipitated and perhaps for the first time brought to light by disease below the diaphragm but no more than any other strain, and certainly not fundamentally caused thereby."

In discussing the relationship of gallbladder disease to heart disease it has been suggested that gallbladder disease may affect myocardial function since: (1) The presence in the circulating blood of bile salts and bile pigments incident to acute attacks has a toxic effect on the heart and circulation; (2) the infected gallbladder may act as a focus of infection; (3) the colic in gallbladder disease could cause a derangement in myocardial function by reason of the severe pain and the somewhat similar innervation.

The frequent association of the two diseases is common as illustrated by the following case:

CASE NO. 3

Mrs. O. W. K., 51 years of age, consulted me on April 19, 1938, complaining of pain in the chest on exertion, upper abdominal distress, and hemoptysis. The pain in the chest was substernal, precipitated by exertion and relieved by rest. Indigestion had been present for several years, consisting of regurgitating of food, and on several occasions severe epigastric pain.

She was 51 years of age, five feet, two inches tall and weighed 160 pounds. There was a prominent suprasternal pulsation, the heart was enlarged

to the left, the rhythm was regular, there were no murmurs, and the blood pressure was 170/100. There was slight tenderness in the upper right quadrant in the region of the gallbladder.

The electrocardiogram showed no significant changes, but exertion invariably produced substernal pain. She was placed on a modified rest routine with dietary instructions, but failed to improve. X-ray of the gallbladder following the dye, and of the gastrointestinal tract, reported gallbladder of normal function, negative stomach and pathologic appendix. Because of the characteristic gallbladder symptoms she was operated upon, on December 19, 1938, with removal of the appendix and gallbladder which contained a number of stones. Her convalescence was interrupted by phlebitis in the left leg, but was otherwise uneventful. Following this she continued to have substernal distress, but was up and about during 1939, largely relieved of her digestive symptoms but still having substernal pain on exertion. In April 1940, the anginal pain became more severe and more frequent with definite occlusion and infarction about May 1, 1940. She expired May 30, 1940, from heart failure, resulting from coronary disease and myocardial infarction.

COMMENT

In this patient, there was undoubted gallbladder disease and coronary disease. The gallbladder disease antedated the coronary disease, but the latter was not improved by surgical removal of the gallbladder. Did the presence of the two diseases, cholelithiasis and atherosclerosis of the coronary vessels, represent a fundamental derangement in the lipid-cholesterol metabolism?

Improvement of the cardiac status as shown by reversal of an abnormal electrocardiogram to normal is illustrated by the following case.

CASE NO. 4

Mrs. E. M., 59 years of age, was admitted to the Shreveport Charity Hospital, January 30, 1941, complaining of pain in the upper right side of the abdomen. For the past two or three years, she had had a gaseous type of indigestion and in February 1940 had severe abdominal pain in the upper right quadrant radiating to the right shoulder blade. The pain recurred in August 1940, and several times since, accompanied by nausea and vomiting. There was also some precordial distress and occasional palpitation. The significant findings were: Normal nutrition, normal blood pressure, tenderness in the mid-epigastrium, heart not enlarged, rhythm regular, and no murmurs. Laboratory examinations showed normal urine, normal blood count, negative Kahn, mild hyperacidity, and an icteric index varying from 10 to 24. X-ray

examinations showed normal chest, no renal calculi, and non-visualized gallbladder, following double dose dye technic. The electrocardiogram showed left axis deviation, sagging of the ST segments in leads one and two, upright but low T_1 , and an inverted T_4 . The tracing was interpreted as indicating coronary disease.

In view of these findings, operation was advised, but on February 15, 1941, she developed paroxysmal auricular fibrillation followed by slight elevation of temperature, nausea and vomiting. After this was controlled and following digitalization, operation was again advised and on March 10, under local anesthesia, cholecystectomy was performed by Dr. W. H. Brown, removing a small contracted gallbladder containing multiple soft yellow stones. Convalescence was rather uneventful and she was discharged on March 23, in good condition. Electrocardiograms made on March 13 and 17, showed left axis deviation, (minus 15), occasional auricular premature beats, T_1 now of good amplitude, T_4 normally upright and T_3 slightly inverted. The change in the electrocardiogram was interpreted as evidence of myocardial improvement.

The exact relationship of the gallbladder disease to the electrocardiographic changes is perhaps speculative. Undoubtedly this patient had or has an injured myocardium, which at least may have been aggravated by the gallbladder disease. Perhaps the diseased gallbladder was just sufficient strain to bring to light electrocardiographic evidence of myocardial disease, but with a healthy myocardium, no such electrocardiographic abnormalities would have been produced. From this and other cases it seems that Fitz-Hugh and Wolferth were justified in their conclusions that the majority of patients with coronary and myocardial type of heart disease, or with symptoms and electrocardiographic findings suggestive of these disorders, who have associated gall stones, are usually greatly benefited by a skillful and judicious gallbladder operation.

DIFFERENTIAL DIAGNOSIS

Even though there be no direct etiologic relationship between gastrointestinal and cardiac disease, there is one fundamental point of interest, namely the differential diagnosis between cardiac disease and certain gastrointestinal diseases. Here the physician is largely concerned with the differentiation of coronary disease with its substernal or epigastric pain and those disturbances of the gastrointestinal tract

which may simulate coronary disease. Herick⁸ has called attention to the many conditions that have been confused with coronary thrombosis and mentions the following abdominal conditions that he has seen mistaken for coronary disease: Gall stones, ulcer of the stomach and duodenum, carcinoma, pancreatitis, acute gastritis, spastic colon, and hernia of the diaphragm.

Time will not permit a consideration of the differential diagnosis of every disease of the gastrointestinal tract that might be confused with cardiac distress. Suffice it to say that a careful consideration of the history, physical findings and certain laboratory procedures, such as the x-ray and electrocardiogram, should make the differentiation. Usually it is not a difficult matter but on occasions will be quite baffling.

DISEASES OF THE ESOPHAGUS

There is one portion of the gastrointestinal tract, namely the esophagus, diseases of which may readily simulate cardiac disease but are often entirely overlooked. Both organs are in the thorax and both may have as their predominant symptom, pain which may be epigastric or low, intermediate, or high in position behind the sternum. The esophageal conditions that may be confusing are heart burn, due to reaction of acid gastric juice or contents in the lower esophagus, cardiospasm, diaphragmatic hernia, esophageal ulceration, tumor, or diverticulum.

Esophageal ulceration, tumor, and diverticula may produce substernal pain but it is more often related to eating than exertion and more prolonged in its attacks. Careful fluoroscopic observation of the esophagus during the swallowing of barium and esophagoscopy should establish the diagnosis.

Heart burn, cardiospasm, and perhaps central diaphragmatic hernia, all of which are characterized by esophageal pain, more often are concerned in the diagnosis. The predominant symptom in these conditions as in coronary disease is pain which may be epigastric or low, intermediate or high in position behind the sternum. The esophageal pain in these conditions is more often

burning or sharp, well characterized by the term heart burn and less likely to radiate into the arms. The pain of coronary insufficiency is more of a heavy oppression or choking sensation, which may remain localized but is more likely to radiate to the left shoulder and arm. Coronary pain is invariably precipitated by effort, whereas esophageal pain is more often associated with eating. Generally the attack of esophageal pain is terminated by belching, with the release of the spasm. Esophageal pain is frequently precipitated by tobacco, which may also aggravate the pain of coronary insufficiency. The nitrites tend to relieve the pain in both conditions, so may add to the confusion in diagnosis. Atropine may relieve the esophageal pain but has no effect on coronary pain.

DIAPHRAGMATIC HERNIA

Diaphragmatic hernia of any type and particularly hiatus hernia, though not very frequent lesions, may be confused with coronary disease. The symptoms of hiatus hernia include dyspnea, cyanosis, palpitation, feeling of fullness or of suffocation and substernal pain, which may radiate to the shoulder. Symptoms from hiatus hernia usually begin at about thirty years of age and may readily extend into the coronary age. Often hiatus hernias are incorrectly diagnosed or overlooked, the correct diagnosis depending upon careful roentgenographic examination. The substernal pain due to hiatus hernia may readily be confused with coronary pain, since it may be of similar character and of the same distribution. The points in the differential diagnosis may be summarized as in table 1.

Larger diaphragmatic hernias, either traumatic or congenital, may also offer some confusion in diagnosis as illustrated by the case reported by Rigby.⁸ In that instance a 22 year old white female complained among other things of severe attacks of palpitation, usually developing during the night and often causing her to get up out of bed. These attacks had been so disturbing that the diagnosis of heart disease had previously been made. Following

TABLE 1

Diaphragmatic Hernia	Effect of:	Heart
No constant effect.....	Exercise	Usually aggravates
Usually aggravates	Horizontal position	Little or no effect
Almost always aggravates.....	Large meal	Variable effect
Aggravates	Alcohol	Relieves
Aggravates	Tobacco	Aggravates
Frequent	Hematemesis	Never
Usually relieves	<div><div>{</div><div>Nitroglycerine Rest Small meals Belching</div><div>}</div></div>	Usually relieves
May relieve	Atrophine	No effect
May relieve	Alkali	May relieve

repair of the large diaphragmatic hernia, all cardiac and other symptoms were relieved.

CONCLUSIONS

1. Cardiac disease frequently manifests itself by gastrointestinal symptoms.
2. Poor cardiac function results in impaired function of the gastrointestinal tract.
3. Gastrointestinal disease, particularly of the upper abdomen may produce functional cardiac disturbances and pain quite similar in character and distribution.
4. Gallbladder disease and coronary disease are frequently associated and gallbladder disease may at least aggravate existing myocardial disease.
5. The differential diagnosis of cardiac disease, particularly coronary disease and certain gastrointestinal diseases, requires careful study with full recourse to the necessary laboratory aids.

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DISCUSSION

Dr. Allan Eustis, (New Orleans): This has been a very interesting paper. I am particularly interested in the interrelationship of gallbladder disease and cardiac disease. In 1926 I analyzed 100 cases of myocardial insufficiency as to probable etiology. As I recall, 38 per cent had chronic gallbladder disease and many of them improved after removal of the gallbladder. Their myocardial insufficiency disappeared with other measures. I am inclined to think that many cases of chronic gallbladder disease may be due to insufficient absorption of vitamin B₁. At any rate, it is of interest to note that there is a certain amount of interrelationship between chronic gallbladder disease and myocardial disease. Epigastric pain in patients with myocardial disease is often the first symptom complained of, even before dyspnea. If the liver is examined the left lobe is enlarged and quite sensitive to pressure. Such persons often consult a physician for stomach trouble. At this time when so many of us make routine examination of the contents, it is well to caution against passing a stomach tube unless the heart is able to stand the strain of vomiting. While an intern at Charity Hospital, I experienced several minutes of anxiety when a patient almost collapsed on account of a weak heart muscle while I was passing a stomach tube.

THE TREATMENT OF INFLAMMATORY CONDITIONS BY THE X-RAY*

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The radiologist may be criticized for delay in publicizing the results of radiation in inflammatory conditions. This delay has not been due to disappointing results, for on the contrary, the results in the main have been astonishingly good. It is the part of wisdom, however, to place the treatment on a scientific basis, rather than on one of empiricism. The empiricism in radiation began with Antoine Henri Becquerel, a French physicist, who accidentally received in 1897 a radiation reaction. As malignancies were treated at that time with the flaming cautery, it was thought that radiation could be substituted for this older method.

Three years later the first x-ray treatment on an inflammatory process was given, and in 1906 Coyle was the first to treat carbuncles with the x-ray. In 1916 Dunham published an article in the *American Journal of Roentgenology* on the same subject. And from time to time Desjardins of The Mayo Clinic has published a number of articles dealing with radiation of inflammatory lesions. Others followed the lead of these pioneers, until now there is a splendid array of articles dealing with the subject of radiation in inflammatory conditions.

TYPES OF CONDITIONS TREATED

After a careful survey of these writings, coupled with my own experience, it is safe to say that there are a number of inflammatory conditions that respond satisfactorily to radiation, particularly the early stages of erysipelas, carbuncles uncomplicated by diabetes, sinusitis, early mastoiditis, acute lobar pneumonia, chronic or unresolved pneumonia, adenitis, cellulitis and lymphangitis, acne, early breast abscess, non-epidemic parotitis and paronychia.

Acne vulgaris probably leads the list of cases referred to the radiologist for treat-

ment. Both the pustular and badly scarred types are benefited by radiation, as well as the deep-seated lesions and those where comedones are numerous. The pustular type, according to Ullmann, reacts to the x-ray by a diminution of the secretory activity of the epithelial cells of the sebaceous and sweat glands, in addition to the effect of the x-ray on the lymphocytes and polymorphonuclear leukocytes. It is noticed that oily and moist skins become dryer soon after treatment is begun, so the above theory of Ullmann is probably correct. Treatments are given at weekly intervals, for about eight to 10 weeks depending upon the type of case being treated. In certain patients, with care, 14 to 16 treatments may be safely given. It is fortunate that acne is so successfully treated with the x-ray, for there is no condition of adolescence that can lead so quickly to an inferiority complex.

To one who has had a furuncle, the relief of pain is a godsend, and the x-ray does this rather effectively within twenty-four hours, and frequently in five or six hours. If seen early, it is possible to abort the condition, but even in the later stages, the course is shortened, drainage is increased, and if incision is made, the healing of the incision is quickened.

The usual areas for recurrent boils are the back of neck and the axillae, and in this type of case the x-ray is of decided service, as a single suberythema dose will usually successfully prevent any new lesions.

Facial lesions must not be regarded lightly, on account of the danger of a spread to the vessels of the brain, and with the success shown in the x-ray treatment of lesions of upper lip, nose and face, it is suggested that these lesions be given immediate x-ray treatment.

Gas gangrene should first be confirmed by x-ray examination, which will show even a small amount of gas in the deep tissues. If positive, there should be no delay in beginning x-ray treatment. In a recent article, Col. Albert Bowen, who has done some remarkable work at Fort Sam Houston in the treatment of gas gangrene with

*To have been read before the sixty-second annual meeting of the Louisiana State Medical Society, Shreveport, April 23, 1941.

the x-ray, admits that the method of action of x-rays in gas gangrene is not entirely clear. It is possible that the x-ray may reduce the toxicity of gas toxin, as an active ionizing agent. It is known, from experimental work, that hydrogen peroxide is produced in the tissues during the treatment, and this would serve to prevent the development of anaerobic organisms. The results in the treatment of *Bacillus welchii* (gas gangrene) have been good, almost to the point of claiming that the x-ray is a specific. If this be true, think of the wonderful benefit this knowledge will be to a war-torn world, particularly when we look back at the number of deaths from gas gangrene during the last war.

DOSAGE

Now as to dosage, in treating inflammatory lesions, it is invariably small, and of course, the earlier treated, the smaller the dosage. There is no hard and fast rule for actual dosage, each patient being considered a separate entity, but the general dosage in very acute inflammatory lesions is 100 roentgens, in subacute conditions 100-150 roentgens and in chronic cases not more than 250 roentgens. It is to be noted that the doses are small, not enough to produce alterations in the skin or gastrointestinal tract, and are in no wise to be confused with the massive doses used in the treatment of malignant conditions, where it is necessary to use the largest depth dose, without damage to the skin or normal adjacent tissues.

The striking results reported by Edsall and Pemberton in 1907, in the treatment of unresolved pneumonia by means of x-ray therapy, have continued to the present day. In fact radiotherapy is now considered the treatment *par excellence* for non-resolution following pneumonia. As in so many other conditions, the best results are obtained by early treatment. The excellent results obtained in unresolved pneumonia prompted investigators to begin treatment of lobar pneumonia with x-ray. An added reason for this step was the good result noted in the treatment of carbuncles and streptococcic cellulitis and other acute inflammatory and infectious conditions. In one series of cases,

Powell had a mortality of less than 2.5 per cent in lobar pneumonia and 14 per cent in all types of pneumonia treated by x-ray. The usual dosage is 250 r, filtered with 3 mm. aluminum, with 130 KV to deliver 50 per cent of a skin tolerance dose. If a patient fails to respond, this should be repeated in 24 to 48 hours. There appears to be no contraindication to the use of x-ray in pneumonia, and the results seem to warrant its continuance.

In any x-ray treatment, it is well to bear in mind the sensitivity of the various cellular make-ups of the human body, each being a separate and distinct entity, and reacting in its own way to the action of radiation. In the following table arranged by Desjardins, the cells are arranged in the order of their susceptibility to the x-ray. With this table as a basis, it is easy to see why the lymphoid structures respond so readily to radiation.

SUSCEPTIBILITY OF CELLS TO X-RAY

Lymphoid cells: Lymphocytes found in the spleen, lymph nodes, blood, bone marrow, thymus and tonsils.

Polymorphonuclear leukocytes: Found in the blood or tissues.

Epithelial cells: Found in certain secretory glands, basal epithelium of the testes and ovary, basal epithelium of the skin and mucous membranes, alveolar epithelium of the lungs, bile ducts and liver and epithelium of tubules of the kidneys.

Endothelial cells: Found in blood vessels, pleura and peritoneum.

Connective tissue cells.

Muscle cells.

Bone cells.

Fat cells.

Nerve cells.

CONCLUSIONS

While the value of the x-ray in the treatment of certain inflammatory conditions has been proved, let me urge every radiologist to cooperate closely with the surgeon and internist while treating these patients. Surgical drainage may be necessary, and should be done at the appropriate time. In practically all of these patients, general nutritional measures should be instituted by the internist.

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CONSERVATIVE AND OPERATIVE TREATMENT OF FRACTURES OF THE NECK OF THE FEMUR*

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Fractures of the neck of the femur may occur at any age but the greater percentage is in people over fifty years. These fractures are due to a fall on the lateral side of the femur, especially in the area of the hip and the great trochanter. Because of the fragility of bone in older individuals and because of the lack of quick muscular coordination, a simple slip or fall may result in a direct blow at the trochanteric area with resulting fracture, while in younger individuals quick muscular response allows the individual to protect this area. Every elderly person who, on falling, complains of pain in the area of the hip or who is found to lie with the lower extremity useless, must be considered as having a potential neck fracture. It must be borne in mind that occasionally these fractures are associated with impaction and that the impaction is sometime sufficient to allow these patients to get around but with discomfort.

The clinical picture is a useless lower extremity which is usually held in external rotation and which is definitely painful to movement. The pain is at the hip area and muscle spasm, because of this pain, appears rapidly and formidably. There is shortening in the lower extremity and measurements taken from the antero-posterior

spine to the internal malleolus vary from one-half to two inches as compared to the normal opposite limb. Since x-rays are almost universally available, it should be a simple matter correctly to diagnose this condition. Sometime the fracture line is not definitely seen. However, a distortion in Shenton's line (a curved line which extends along the medial side of the shaft of the femur across the inferior edge of the neck and along the inferior edge of the ascending ramus of the pubis) indicates the possibility of fracture even when dissolution in continuity is not visible.

The blood supply of the head of the femur is from ligamentum teres, capsular arteries and the nutrient artery entering the medullary cavity at the trochanters. The capsule of the hip joint is attached anteriorly between the greater and the lesser trochanter and posteriorly, it is attached on the neck at its outer end. Neck fractures can occur within or without the capsule of the joint. Treatment is not affected by the location of the fracture but prognosis as to bony union is materially different. If, within the capsule, the only remaining blood supply to the proximal fragment is from the ligamentum teres and as this supply is poor at best, non-union, fibrous union and even necrosis or death of the head of the femur may result.

Fractures through the femoral neck give a proximal fragment which is without muscular attachments and a distal fragment to which is attached all muscles with origin from the pelvis and insertion into this fragment. The gluteal muscles, adductors, iliopsoas and hamstring muscles produce upward displacement of the distal fragment. The iliopsoas muscle and the gravity pull of the entire limb produces the marked external rotation seen in these patients.

Statistics vary greatly, but a 10 to 25 per cent mortality can be expected. Death is caused by shock, cardiac or renal failure in the earlier phases, and hyperstatic pneumonias later.

Firm bony union can be expected in 20 to 70 per cent of surviving persons efficiently treated, with the remainder result-

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ing in non-union, fibrous union or head necrosis and head and neck absorption.

It is important in studying x-rays to consider the line of fracture. Magnuson, in his text on fractures, brings out this important point and it is again stressed by Watson-Jones in his recent book. Watson-Jones classifies neck fractures into two groups; namely, the abduction fracture and the adduction fracture of the neck of the femur.

The abduction fracture line runs obliquely from above, downward and medially; this course of direction gives two fragments with the axis movement in such a position so as to cause impaction. This type of fracture can be treated by some of the conservative methods and good results obtained in a large per cent of cases.

The adduction fracture, on the other hand, has a line of fracture running either transversely or in a line from above, downward and outward, giving an obliquity with axis movement of the distal fragment constantly away from the fractured surface of the proximal fragment. This type of fracture frequently requires one of the methods of internal fixation, because conservative measures fail to maintain positive reduction.

TREATMENT

Treatment consists of reduction followed by some form of fixation. The fixation methods are: (1) The Whitman spica cast; (2) double spica cast; (3) well leg traction splint; (4) impaction; (5) skin traction; (6) internal fixation. Selection of a fixation method is based on: First, the age and general condition of the patient; second, the line of fracture, as described above, and, third, by the equipment and knowledge of application.

Regardless of the type of fixation anticipated it is essential that a complete reduction be obtained. This can be accomplished by one of two methods: First, the Whitman method, which is the simpler of the two, usually suffices. The Whitman method consists of traction with sufficient hold above so as to produce countertraction; this overcomes override. Then, the limb is thrown

into internal rotation which brings the fractured surfaces in contact. The abduction is necessary to maintain the reduction. If abduction is not maintained, the proximal fragment lying in the acetabulum will have an opportunity to work loose either above or below and there is little chance of maintaining reduction. In abduction, the superior surface of the neck is brought into forcible contact with the superior ridge of the acetabulum and in this way the proximal fragment is fixed; this prevents displacement.

The second method of reduction is the Ledbetter method. The principles behind this method are identical with the Whitman method but the maneuvers are slightly different. It is used when the Whitman method has failed. The hip and knee are flexed to a right angle and by pushing upward on the flexed leg, using the flexed knee as a fulcrum and the weight of the patient's body below as countertraction, hard traction can be applied. With the traction and countertraction so exerted, the next movement is extreme internal rotation; this, as in the Whitman method, brings the fractured surfaces into contact. Now, the hip and knee are extended completely and as they are extended the limb is brought to the position of extreme abduction.

An efficient method of ascertaining whether reduction has been obtained is the Ledbetter palm test. It must be remembered that in its origin the tendency of the limb was to external rotation. The heel of the abducted limb is placed into the palm of the hand and if no suggestion of external rotation occurs, it can be stated that satisfactory reduction has been obtained. This Ledbetter test does not discount the importance of check x-ray plates.

Local, general or spinal anesthesia is usually necessary for reduction when displacement is marked. Amytal and morphine give sufficient relaxation in the early stages of some cases where skin traction alone is used for fixation.

The Whitman cast is one of the older methods of fixation; the cast is applied after reduction on a fracture table or spica

rest and actually consists of a body cast incorporated with a long spica, the limb being held in the position of abduction. The ordinary spica does not suffice and will not maintain the abduction and internal rotation which is essential to the continued reduction of the fracture.

The double spica with both limbs in abduction is advocated; this spica is short, incorporating only the pelvis and both thighs but this makes a much harder nursing problem and is seldom used.

The well leg traction splint was introduced by Rogers Anderson about eight years ago. The application of this splint requires a Steinman pin insertion through the tibia of the injured limb. To this pin is attached a short leg cast; on the well leg a long cast, including the lower two-thirds of the thigh, leg and foot, is applied. After reduction, the splint is incorporated into the two casts and by set screws it is possible to pull downward on the injured limb and push upward on the well limb and in this manner relative extreme abduction of the hip can be obtained and maintained. This method is suitable in a selected group of individuals and requires either general or spinal anesthesia for its application.

A method of impaction was described by Cotton; it is seldom used today. This requires positive reduction by one of the two methods outlined above under general or spinal anesthesia and forcible impaction by covering the trochanteric area with a piece of felt and hammering with a large wooden mallet.

Skin traction is one of the oldest types of treatment next to sandbags. Straight pull by means of adhesive applied to the lower leg and a pulley over the end of the bed, called Buck's extension, has been in vogue for a long period of time. Following the World War, with the introduction of Russell or Australian traction, which is a multi-pulley traction applied by means of an overhead frame attached to the bed, skin traction has been more popular in treatment of these types of fracture. I have been able to obtain very satisfactory results provided the traction is correctly applied

and provided that positive reduction has been obtained and constant daily check of the apparatus carried out. The patient is placed on a surgical bed with the overhead fracture frame attached. Mole skin adhesive plaster is applied to the lower leg; this plaster is attached to a spreader in the end of which is a pulley. When the overhead frame is completely assembled it is necessary to do a manual reduction of the fracture by the Whitman or Ledbetter method. If there is much displacement, general or intravenous anesthesia is necessary. In many cases, especially if the fracture is recent, it has been possible to obtain reduction with relaxation obtained by morphia with or without an oral dose of one of the barbiturates. After reduction has been obtained, the Russell traction is connected. Extreme abduction is necessary and it is wise to place the pulleys at least one foot away from the side of the bed; this will give sufficient abduction. It is easy to maintain internal rotation by placing a sling around the foot to which is attached a one or two pound weight, the rope going through a pulley on the overhead bar on the opposite side of the bed. For a few days, six pounds of weight is applied, at the end of the fourth day one pound is removed and at the end of another four days a second pound is removed. This leaves but four pounds of weight attached to the pulley. Because of the law of the multiple pulleys this four pound weight is supposed to exert an eight pound pull. The author has found that too much weight will tend to separate the fragments. This traction is continued for a period of from eight to ten weeks and repeated check x-rays are made, especially in the antero-posterior plane, to be certain that reduction has been maintained. Following removal of traction the patient is treated in the usual manner.

Skin traction by means of Russell or Australian method is applicable in individuals who are not good surgical risks. With this method of treatment very little, if any, anesthesia is necessary and a few hours after the manipulation and application of traction the back rest of the surgical bed

can be raised to a fair height. This method has been found to be very efficient in handling abduction types of fracture.

Numerous methods of internal fixation have been devised. One of the oldest of these methods was described by Martin, of New Orleans, over twenty-five years ago. Internal fixation was not universally adopted until Smith-Petersen of Boston devised a three pronged stellate nail which today is known as the Smith-Petersen nail.

Internal fixation has become the preferable method of obtaining fixation in fractures of the neck of the femur. If the patient is a fair or good surgical risk there is no doubt that internal fixation is the best and most positive type of immobilization. General anesthesia, spinal anesthesia, or some form of intravenous anesthesia is necessary. Also, it is wise to use some type of direction finder so that the nail may be placed correctly and that the nail be of sufficient length. I have found the May-Engel direction finder very satisfactory. Under some form of anesthesia a longitudinal incision, about four inches in length, is made from the great trochanter down the shaft of the femur and is carried through fascia, then bluntly to bone. The May-Engel finder is placed in position about three-fourths of an inch lower than the tip of the great trochanter. Check x-rays are made in both planes. The direction and length of the nail is now ascertained and the nail is easily driven into place. The incision is closed in the usual manner, dressings applied, and the patient is kept in bed for a period of two to four weeks. No fixation as a rule is used. However, in some cases it has been found necessary to place the limb in a Hodgen's splint, which acts as a cradle and prevents undue motion. Weight bearing is not allowed for at least twelve weeks.

Other forms of internal fixation have been devised. The Martin method of inserting wood screws is still used in the area around New Orleans. Kirschner wires inserted in varied directions are advocated by some surgeons.

Moore pins, consisting of three larger calibered Kirschner wires, or smaller calibered Steinman pins are inserted in a tri-

angular manner, according to Moore's technique. Henderson, of The Mayo Clinic, uses a lag screw which seems to be efficient.

CONCLUSION

Regardless of the method of fixation, very complete reduction is essential for bony union. Internal fixation is the method of choice where it can be safely used. Internal fixation is a surgical procedure which carries risks and possible complications. Russell or overhead traction carefully supervised gives good results and is especially useful where internal fixation is contraindicated.

DISCUSSION

Dr. A. A. Tisdale (Lafayette): Dr. Simon has shown us again that the four "r's" in fractures are applicable to the fracture of the neck of the femur; that is, recognition, reduction, retention, and rehabilitation. In these fractures, irrespective of method of retention used, absolute reduction is essential. You can use excellent retention but if the fracture is not reduced properly the percentage of good results is certainly reduced.

It should be mentioned that there is a certain percentage of patients, irrespective of good reduction and good retention, who will have a necrosis of the upper fragment; that is, the head and part of the neck of the femur. In patients with necrosis, that is aseptic necrosis, some other reconstructive operation is indicated. Where you have a lack of equipment or lack of knowledge and experience, then it is better not to proceed with the operative method but to use the Russell traction with the extremity in marked abduction and internal rotation as shown in the moving picture. In using Russell traction, be sure to have reduction before putting traction on or good results will not be obtained. After the fracture position, do not put on too much pull so that the fragments will be pulled apart and thus result in non-union.

Dr. Isidore Cohn (New Orleans): Dr. Simon's paper was one of the most illuminating presentations of the mechanism I have seen and I could not help but smile at the splendid use that was made of the rubber balloons. It was really one of the most ingenious things I have ever seen. As I look back over a rather long experience, I remember the time when if you had a fracture of the neck of the femur it was thought there were just two things to look forward to; either death or permanent invalidism, in the days when the Hamilton or Liston splint was in use. Bed sores were a common experience if the patient lived long enough for that.

We do know that Whitman gave us the fundamental principles on which the modern treatment of fracture of the neck of the femur is based. Prior to Whitman's introduction of abduction method of

treatment of the neck of the femur, it was just a matter of pull and tug, without attention to action of the muscles. Therein lies the fundamental principle in the treatment of all fractures. I do not care whether general surgeon or orthopedic surgeon, no matter what a man calls himself, the man best qualified to treat the patient is the man who should treat him. The various methods Dr. Simon has shown us all have their distinct place and each must be used with the head and not with the machine.

There is only one point I want to take issue with. Dr. Tisdale said that before the use of Russell traction be sure that the deformity is reduced. I hate to disagree but too many times I have accomplished reduction after four or five days with Russell traction. I can show that is true, not from books but from personal experience.

In fracture of the neck of the femur another point is important. I hope Dr. Simon will dwell on that in closing; that is at the end of eight or ten weeks, just because a certain period of time has elapsed, does not mean the patient is ready for weight bearing. I hope the time will come when evidence of complete ossification will be depended on before weight bearing is allowed. Bad results are favored by too early attempts at weight bearing. This is particularly true now that we are going to have to deal with a great many fractured limbs as a result of possible war.

Dr. J. T. O'Ferrall (New Orleans): I was interested in this paper and wish to say a few words. I would like to stress one or two points because I believe that Dr. Simon read this paper primarily for the benefit of the general surgeon and general practitioner. They are the ones who see the majority of these fractured hips first. It is so often the case that the family and the attending physician will become somewhat excited when they see a case of suspected fracture of the hip, or one they believe is really fractured. They are in a great hurry to do something. I think that is an error. I believe in all of these cases, the vast majority of which are among aged people, that the primary thing to do, if it happens in the patient's home, as it often does, is simply apply Buck's extension with use of sand bags to prevent too much external rotation and let these people recover from the shock, which does occur in practically every case. There is no advantage in doing a nailing operation or applying a plaster cast in the Whitman position immediately. A delay of ten days or two weeks in no way influences the end results. I think it has been pretty well considered good judgment to let all of these old people recover to some extent from shock. It is my policy always in handling cases in the hospital also to put Buck extension with little weight, six or seven pounds, and wait a week or ten days or two weeks. Henderson, of The Mayo Clinic, lets the patient wait three weeks before doing more than that. My experience has been that there may be no shock for a day or

two and then the patient may develop toxemia and so forth. If attempting to nail on the day of injury or application of conservative method of treatment, might mean the loss of a patient, it is best to let him recover from shock and then do reduction and the permanent treatment, according to whatever method is chosen.

Another point in the paper which I want to stress is the danger of too much abduction. I had that experience only last week, in reducing a fracture of the neck of the femur. After we reduced it and checked up with x-ray we found too much abduction and the position was not as good as it would have been with less. You can overdo the thing. From the standpoint of fixation by means of Smith-Petersen nails and various other methods, I personally prefer multiple nails, Moore pins, for several reasons. One is that there is no question in the world that the Smith-Petersen nail gives probably a fixation with a greater dimension of support but the Smith-Petersen nail displaces so much bone tissue within this narrow femoral neck that I believe in some instances the non-union is produced by that fact and interferes with circulation by putting too large a nail within the neck. I also think the Smith-Petersen nail operation is one that requires too much of an operation for old people, whereas with the Moore pins you can do the whole thing under local anesthesia and you do not have to give a general anesthetic.

Dr. H. Theodore Simon (In closing): I agree with Dr. Cohn in that Russell traction will give replacement. However I have made it a policy since there have been so many failures with Russell traction without manipulation, to insist on some type of manipulation. As a matter of fact it is easy to go through maneuvers of Whitman's manipulation. This is usually done, with morphine alone or with barbiturate narcosis, if necessary.

The other points in the paper which have been stressed by the doctors who discussed the paper could not be emphasized in this presentation, as it would have taken too much time.

—o— FRACTURES IN CHILDREN*

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AND

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Fractures in children are common injuries possessing certain attributes not similar to like injuries in the adult. The anatomic and physiologic principles in-

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volved are common to both groups. It has long been recognized that the physician can only aid the recuperative powers inherent in living tissue, this being true of fractures in both adult and child. However, nature is more generous in her aid when the child is her patient. Fragments that are easier to handle, anatomic results that improve as the child grows older, better functional results, shorter periods of disability are but a few of the points differentiating fractures in children from those in adults.

TECHNIC

It has been our experience in conducting the Fracture Clinic at Touro Infirmary to adhere to a certain routine which appears to be the most practical and efficient. The technic is as follows: The patient, who comes to the clinic, is examined and a diagnosis of fracture, if gross deformity is present, or possible fracture is made. The patient's injured part is x-rayed, the orthodox antero-posterior and lateral views always being requested. At times an oblique view is necessary. Frequently, on ordinary x-ray plates, epiphyses will appear to have suffered a fracture dislocation and a fluoroscopic examination will be essential before definite diagnosis can be made. If a fracture is present and there is displacement, the patient is returned to the emergency room, given a general anesthetic and the fracture reduced. An attempt at reduction is made as soon as possible, as the swelling of the part affected is minimum, handling the part is easier, a better anatomic result can be obtained, and the general anesthetic relaxes the contracted and spastic muscles. After reduction the part is immobilized by anterior and posterior splints over a stockinet dressing, allowing a space about one inch in length between the sides of the plaster splints. Since more swelling of the part is going to occur, the dressing and plaster splints should not be too snug to produce any circulatory embarrassment to the part distal to the part affected. For this reason, plaster splints are preferable to casts in fractures of the forearm and

arm. The patient is not allowed to leave the emergency room until he has entirely reacted from the anesthetic. The parent is told about watching the child for circulatory embarrassment in the affected part, as is manifested by blueness or coldness of the part, and also to return the child the following morning to the clinic. This serves a two-fold purpose: First, we assure ourselves that the splints are all right and that there is no circulatory disturbance of the part, and secondly, we obtain a check-up x-ray picture which tells if the reduction is satisfactory. If not, another attempt at reduction may be done at this point. For the small trouble of seeing the patient the following morning, we feel amply rewarded by saying that we have not had a Volkmann's ischemia in the past three years. One patient with Volkmann's ischemia, a white female, aged 9, was referred to the Fracture Clinic by a private practitioner and was seen by one of us (S. M. C.) four weeks after the initial injury. At the time of injury she immediately saw her physician who had an x-ray picture made. The film revealed an incomplete greenstick fracture of the lower third of the shaft of the right ulna. A plaster cast was applied to the forearm and the child was sent home and not seen for one week. At this time a pressure sore was present over the volar aspect of the mid-third of the forearm and she had the typical claw hand of Volkmann's ischemia. Need it be said that the child would have been more fortunate if no doctor had seen the injury originally. In this instance, a cast that was too tight, either originally or subsequently, was applied and not seen for one week. There are many pitfalls in the treatment of fractures that are unavoidable but at least there are a few that are escapable.

The post-reduction period of the child's fracture consists of returning to the clinic at periodic intervals, averaging one visit a week, until discharged. During this period checking of the cast, removing one splint and then the other in stages, wearing of slings, and physiotherapy and heat takes place.

PERSONAL EXPERIENCES

In this personal series of 100 consecutive fractures occurring in children 12 years old and under, several phases of fracture therapy are selected for comment. One appreciates that such a small group of cases is not sufficient to afford one to be dogmatic, but it does suffice to stress certain cardinal principles. These 100 children suffered 131 fractures, thus causing a multiple incidence in almost one-third of the cases.

The direct etiology of the fractures in this series is due to falls, the one exception occurring as the result of an automobile accident. Sixty-seven occurred on the right side and 64 on the left side. Sex does not play a big role for small children; 57 of these patients were male and 43 were females. Twelve bones were the site of various fractures, the shaft of the radius being the most common (table 1). There was not a single compound fracture in this series. As a rule compound fractures will not be as common in children as in adults for the etiologic factors differ widely in the

TABLE 1
SITES OF FRACTURES

Bone Fracture	Number of Cases	Total
HUMERUS		
Elbow	12	
Shoulder	1	
Shaft	2	15
RADIUS		
Base	14	
Epiphysis of base.....	2	
shaft (lower, middle and upper shaft) ..	28	
Head	1	45
ULNA		
Base	4	
Styloid	9	
Shaft (lower, middle and upper shaft) ..	20	33
METACARPAL	3	3
PHALANX	4	4
CLAVICLE	10	10
PELVIS		
Pubis	2	2
FEMUR		
Shaft	2	2
PATELLA	1	1
TIBIA		
Shaft	5	
Ankle	1	6
FIBULA		
Shaft	2	
Ankle	1	3
METATARSAL	3	3
DISLOCATIONS		
Head of radius.....	1	
Olecranon	3	4

two groups. Fractures incurred in industrial work have a high incidence of being compound, as do fractures in automobile accidents. Children are not exposed as much to these factors as are adults.

There were four dislocations in this series, the elbow joint being the site in all instances. The head of the radius was dislocated in one patient and posterior dislocations of the olecranon in the other instances. Reduction was simple and immobilization averaged three weeks. There does not appear to be as prolonged swelling about the elbow joint as in adults.

One pathologic fracture was present in this series, it being a benign bone cyst, at the surgical neck of the left humerus in a 10 year old white male. Like most pathologic fractures in children, the diagnosis was not suspected until the x-ray was made. Formerly, rickets was considered a frequent cause of fractures in children. There was no evidence of rickets in a single x-ray film in this series.

Several bones are deserving of comment. The clavicle in the infant and young child was broken in this series in 10 cases. An anatomic reduction is not difficult to achieve, but the maintenance of the immobilization in some cases, will tax the patience and ingenuity of many experienced physicians. The posterior figure 8 bandage with a felt pressure pad is the commonest dressing that is used in infants and children under five years of age. In cases over five years of age, that is the age of possible cooperation, we employ the Desault bandage. A rather recent device, the Roger-Anderson clavicle splint, has been used and though it maintains a good anatomic reduction, the injured arm frequently develops an edema due to venous stasis after three or four days. Fortunately good functional results are the rule in infants suffering clavicular fractures.

The intra-condylar fractures of the humerus at the elbow and fracture of the capitellar epiphyses appeared in 12 cases. Closed manipulation was the method of choice. None needed an open reduction.

Fractures of the shaft of the tibia are noted in five children and of the shaft of the fibula in two. These revealed complete union in six to eight weeks, whereas the average time in adults is 10 to 12 weeks. In this series closed manipulation was the method employed, skeletal traction was not needed.

Only 38 of the patients required reductions, simple immobilization sufficing in 62 cases. It is probable that a slightly larger number of these patients may have been subjected to reduction if they were adults. Four of the 38 patients required second reductions. Of these four one child had an open reduction and muscle tissue was found between the ends of the fractured bones at the time of operation. Whenever a reduction must again be attempted it is advantageous to use the portable fluoroscope to check on the reduction before applying plaster splints.

Fractures at the wrist are immobilized in splints on an average about four weeks and fractures at the elbow about five weeks. A month old baby with a fracture of the femoral shaft was immobilized six weeks. No retardation of soft tissue development was present and at the end of this time a check up x-ray revealed sufficient callus to permit unrestricted activity.

Every fracture merits three different discharge ratings; namely, an anatomic, economic, and a functional rating. In the child, there are only two, the anatomic and functional. The most important is the functional, for this determines whether or not the child will go through life inhibited in using the affected part. The anatomic result need not be perfect to obtain a perfect functional result and this discrepancy can be even more pronounced in the child as compared to the adult. As has been long recognized, the long bones grow from the epiphyses at the extremities of the shafts and as the bone grows the anatomic deficiency is more and more minimized. This fact may lead some physicians into a sense of false security, for fractures requiring reduction or those poorly reduced may be let alone in hope that nature will, in time, over-

come the deformity. This attitude will and has caused many uncalled for deformities and malunions. The rating number four represents anything between 85 and 100 per cent, the rating number three between 65 and 85 per cent, the rating number two between 35 and 65 per cent, the rating number one between 15 and 35 per cent, and the rating zero between 0 and 15 per cent. The idea of such a system of evaluating results was originally conceived at the Massachusetts General Hospital.

Our series show 77 cases had an anatomic rating of four, 19 cases a rating of three, and four cases a rating of two. Yet 98 cases had a functional rating of four, and two cases a rating of three as shown in table 2.

TABLE 2
ANATOMIC AND FUNCTIONAL RATINGS

	(85-100%)	(65-85%)	(35-65%)
Rating	4	3	2
Anatomic cases	77	19	4
Functional cases	98	2	0

Immediately one is impressed by the greater incidence of excellent functional results over the anatomic results. Such a high incidence of number four functional ratings is not as common in adults. The two cases with number three functional ratings are worthy of more detail.

CASE NO. 1

An 11 year old white male suffered a fracture dislocation of the capitellar epiphysis of the right humerus. He was carefully supervised from the day of injury and placed in acute and then ninety degree extension, but extension was markedly delayed, 110 degrees at nine weeks, and 135 degrees at 12 weeks. A period of 24 weeks elapsed from time of injury to that of discharge. There were marked calcium deposits in the soft tissues about the elbow, probably as the result of hemorrhage about the elbow. Not being able completely to extend the arm, a discharge rating functionally of number three and anatomically of number four was given.

CASE NO. 2

A four year old colored male sustained a fracture of the epiphysis of the base of the left radius, with a posterior dislocation of the epiphysis. This was reduced without difficulty and the part was placed in Cotton-Loder position. However, the patient was not brought to the clinic for five weeks, all this time the hand was in the Cotton-Loder position. At the end of eight weeks there was some

limitation of flexion of the fingers and a rating of number three functionally was given. It is probable that this rating could be changed to number four by this time. This case illustrates that one can not neglect basic principles in children, even though the margin is wider than in adults. It is not good practice to maintain a Cotton-Loder position over seven to 10 days.

PHYSIOTHERAPY

Physiotherapy is not employed as frequently as in adults, only 36 children of the 100 received any type of therapy and this was usually simple baking. It is better to permit active motion before passive motion for there is less danger of harm in this order of events. Passive motion was only employed in fractures about the elbow joint. One does not encounter the arthritis of disuse in immobilized fingers of children as contrasted to the adult. Again the muscles of children regain their tone more quickly and suffer less atrophy than do those of the adults. It is not unusual to see a cast or splints removed from a child and then see that child move the part freely within 24 hours.

SUMMARY

Fractures in children should be treated along anatomic and physiologic principles. An outline of the technic in the Touro Infirmary Fracture Clinic is described. Closed reduction is the method of choice, open reductions being rarely necessary. The period of disability is usually less in children. Results should be evaluated from two points of view, the anatomic and the functional. Perfect functional results are more frequent than perfect anatomic results, the former being the most important. Physiotherapy is not employed in children as frequently as in adults.

DISCUSSION

Dr. Isidore Cohn (New Orleans): In a discussion on the management of fractures in children there are several points which are not ordinarily stressed sufficiently. The first is the importance of the clinical examination and adequate records made at the time of the examination. Much information which is of value is obtained from the history, that is, the nature of the blow and the direction of the blow, as well as the pain and loss of function sustained by the individual. Following interpretation of the history, the examination should be made in

a systematic manner consisting of inspection, light gentle palpation, mensuration, x-ray, and manipulation, the last not until the patient has been anesthetized. Inspection at once tells whether there is a loss of symmetry of the two extremities, the amount of swelling, ecchymosis, and the change in the axis of the limb, if there is any. Palpation of the radial pulse immediately informs us of the condition of the blood vessels. The loss of the radial pulse in injuries of the upper extremities should be carefully noted. Localized pain is of utmost importance. In the examination no effort should be made to manipulate the part until the patient has been completely anesthetized. The x-ray is of great importance if properly interpreted. In children the x-ray cannot be entirely depended upon because the epiphyses may not have been sufficiently ossified to cast any shadow at all. One must be familiar with the normal epiphyses in order to interpret injuries about joints in children.

In the presentation Drs. Copland and Finn have mentioned the fact that they were fortunate enough not to have many cases of Volkmann's ischemia; this is a matter for congratulation. It is evident that patients have been watched very carefully and that tight bandages were not applied. Attention should be directed, however, to the fact that Volkmann's ischemia develops in cases where the etiologic factor has not been a tight bandage, but where there has been interstitial hemorrhage and in some instances definite damage to the blood vessel itself, causing a contraction of the vessel. It is important that where hemorrhage is noted about the joint incision be made so that there will not be a disturbance as a result of compression of the muscle under the fascia.

In the after care of fractures in children or in adults it is important to remember not to use passive motion which causes pain. It is important to keep up the circulation of the parts as adequately as possible. Heat, gentle massage, and in proper time active motion are all the measures that are required.

In conclusion I would like to stress the one point which I think is tremendously important, and that is, that the clinical examination in children is of greater importance than anything else. The x-ray film is confirmatory evidence rather than the paramount factor. Whatever palpation is done should be gentle; localized tenderness should be accepted as a manifestation of great importance. Certainly this is true where no gross deformity exists, and where there is a particular loss of function.

Last, but not least, crepitus should not be sought for at any time, and certainly not while the patient is conscious. No manipulations are indicated until the patient has been anesthetized.

Dr. Paul G. Lacroix (New Orleans): The recognition and treatment of fractures have engaged the attention of medical practitioners in all ages. The axioms formulated and used during the earlier days of surgery held sway until Lucas-Championniere

and Lane noted that in a large proportion of cases deformity and loss of function resulted from an application of commonly accepted axioms of treatment.

The modern methods aim at: (1) A sufficiently perfect restoration of the form of the bone to allow of perfect joint action; (2) the preservation of the full vitality of the circulation and the neuro-muscular apparatus. In order to obtain these results, a knowledge of each method of treatment is necessary and at times a combination of the good points in each is essential.

That the end results are not what they should be in some cases may be attributed to: (1) Inadequate diagnosis; (2) inadequate treatment. Both of these should be eliminated.

If we are to obtain better results, we must be more accurate in terminology and be more exact in examinations. One should not send patients for x-ray examinations before the physical examination has been made. If he does he will be disappointed because of the failure of the x-ray to show a fracture through an epiphyseal cartilage. Surgery should not be subservient to one of its handmaids. Human reason must ever direct artificial or physical measures.

A properly taken history and a systematic examination which consists of inspection, palpation, mensuration followed by an x-ray examination should, in all instances, establish a diagnosis. We might just as well eliminate the so-called sprains if we want to obtain good results in injuries about the joints.

Proper reduction is the most important object in the treatment of fractures. If we make no attempt to obtain accurate approximation of fragments, the subsequent treatment will be valueless as far as perfect contour and good functional results are concerned.

The British Commission, after investigating a large series of cases concluded that "if the anatomical results be good, the functional result is good in 90.7 per cent; if the anatomic result be moderate or bad, the functional result is good in 29.7 per cent; if the anatomical result be bad, the functional result is bad in 53.3 per cent." Also the fracture committee of the American Surgical Association concluded that "good anatomical restitution of a broken bone results in better functional results than imperfect reconstruction and permits of a shorter period of disability."

Many bad anatomic results are finally followed by fairly good functional results, especially in children. In most instances, bad functional results are due to incomplete reduction. However, in a few cases poor functional results are due to adhesions and circulatory disturbances, the result of prolonged immobilization.

Early complete reduction, early superficial massage (not as essential in children as in adults) and

early immobilization will give satisfactory functional results in the vast majority of fractures.

Dr. A. Scott Hamilton (Monroe): There are three points that I believe deserve special mention. One of these is a point which was particularly brought out by Dr. Cohn in his discussion and that is the essential, underlying cause of Volkmann's ischemia. Dr. Copland stated that in one case which he had seen, the patient might better have never seen a doctor. I must take issue with that statement. In a recent series of Volkmann's ischemia it was shown that 25 per cent of the cases never had seen a doctor and still developed Volkmann's ischemia. Too frequently blame for ischemia paralysis is placed on the doctor. This condition has recently been shown to be due in the first place to hemorrhage with resulting arterial pressure and loss of arterial supply leading to generalized muscular fibrosis. That condition can be caused by a too tight bandage but not necessarily so.

A second point I wish to emphasize is that in normal fractures of children, and especially lower forearm fractures, some are too prone to forget the old thought that in the treatment of fractures the joint above should be immobilized as well as that below. In Colles' fractures to put anterior and posterior splint is as useless as a loose board splint on the forearm. These are of no value whatsoever. Fractures treated in this way too frequently are displaced and the patient is blamed for the displacement and not the doctor himself.

A third point I wish to emphasize has been passed upon by the author and principally by Dr. Cohn but the negative part of it was not discussed. That is the use of local anesthesia. I mention it to condemn it. Anyone who uses it in forearm fractures in children is doing one of the worst things he can do. In the first place a child is one who is especially frightened by fractures. Fright leads to more intense muscular spasm. The use of a needle and syringe increases apprehension. Extreme force is commonly used for reductions; this should never be used unless absolutely necessary. The use of a general anesthetic, which has been mentioned by Dr. Copland and Dr. Cohn, is an essential thing. Only when there is definite contra-indication for general anesthesia should local anesthesia be used.

Dr. Sidney M. Copland (In closing): I did not have the time to discuss the physical set-up at the Touro Fracture Clinic. We have a secretary who is familiar with fracture vocabulary; nurse, resident, intern, orderly and the man in charge of the clinic. Every patient has a fracture sheet filled out, as advocated by the American College of Surgeons. This is worth while mentioning because that gives a complete history.

The purpose of this paper was to point out the difference in fractures in adults and in children and with a subject as wide as this, it was impossible to cover it thoroughly in a few brief papers.

As to Volkmann's ischemia, I agree with Dr. Hamilton thoroughly as to the other causes besides a bandage which is too tight; however, you have only one conclusion to draw in the case, and that is that the bandage was too tight. The pressure ulcer is evidence of this fact.

The reason for describing the set-up at the Touro Fracture Clinic is because of the high percentage of excellent functional results. In fractures of the wrist we did not immobilize above the elbow; although I can not find fault with Dr. Hamilton's technic in immobilizing above the elbow, I must say that I am satisfied with the functional results we have had in these cases. In the face of such excellent results, I see no reason to change the technic.

SURGICAL MANAGEMENT OF GOITER*

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Although Louisiana and this section of the South is regarded as a region in which goiter is not endemic, goiters are seen frequently and their varieties are as numerous and types as severe as those found in goiter belts. Apparently goiters are increasing in frequency in this locality. In 1930-1931 one out of every 312 patients admitted to Charity Hospital of Louisiana had a goiter,¹ but in 1938 one out of 213 patients admitted to this hospital had a goiter.² Although this cannot be accepted as proof that goiter is increasing in frequency, it supports that general impression. Possibly two reasons account for this, one, that goiters are being recognized more promptly and more accurately and, secondly, that there is an actual increase in their incidence.

It has long been an impression that goiter is more common in certain parishes in Louisiana than in others. A survey by Olesen³ showed that some parishes in Louisiana (St. James, St. Charles, Washington, St. Tammany) had as much goiter per capita as any region in the United States.

There is some doubt that this survey is accurate since it was obtained by correspondence with state and parish health officers and, no statement was given concerning the actual method of estimation. Many goiters in this report were undoubtedly very minor enlargements of the thyroid gland. In Washington and St. Tammany Parishes for example, 47.5 per cent of the boys and 58 per cent of girls were reported to have goiter. Olesen found the instance of the enlargement of the thyroid gland in the northwest parishes of Louisiana (Webster) extremely low, as it was for the South in general.

In order to gain some impression as to the occurrence of goiter in different parishes and different localities of the State, the patients admitted in 1938 to the three charity hospitals in Lafayette, Shreveport, and New Orleans, with the diagnosis of goiter, were divided according to the parish from which they came. It is realized that the result of such an estimate cannot be accepted without reservation that there are many other factors than those taken into consideration by counting only charity patients in these hospitals. However, the results of this investigation were interesting and supported the report by Olesen that goiter occurred with greater frequency in the southern part of the State. In the southern parishes, the incidence of goiter expressed in cases per 100,000 was higher than in the parishes in the northwest part of the State. For example, from Orleans Parish there were 19 cases per 100,000; in Lafourche 21.5 cases; in Terrebonne 30.4; and in St. Bernard 54.8 cases per 100,000. In Tangipahoa, Washington and St. Tammany parishes, just north of New Orleans, the incidence of goiter so estimated was 22.7 per 100,000. From Plaquemines Parish, which is at the mouth of the Mississippi River and, which has a population of 12,000, there were no cases. Jefferson Parish had 14 cases per 100,000. These parishes are in the vicinity of New Orleans and it is realized that proximity to Charity Hospitals may result in comparatively high figures, but in the upper part of the State,

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Fig. 1. Map showing distribution of goiter cases coming to three Charity Hospitals, at New Orleans, Shreveport and Lafayette, during a twelve month period (1937-1938). The higher incidence of goiter in certain parishes in the State cannot

be explained on a greater population in those parishes. The incidence is greater per ten thousand people. Goiter is apparently more common in the coastal areas even though iodine in fish and food there is abundant.

three adjacent parishes, Bossier, Webster, and Claiborne, had only 5.15 goiters per 100,000 admitted to one of these charity institutions. These parishes are adjacent to a State supported Charity Hospital. In Caddo Parish proper, there were 14.7 cases per 100,000 and, in Jackson and Bienville respectively, 11.2 and 16.8 cases per 100,000. These figures while admittedly not to be accepted with conviction probably do show a slightly higher trend for the occurrence of goiter in the coastal parishes of the State.

THE SURGICAL SIGNIFICANCE OF GOITER

By goiter is meant either an enlargement of the thyroid gland or a hyperfunction of the thyroid gland with or without an enlargement. It is not necessary for the thyroid gland to be larger than normal for goiter to be present. As a matter of fact,

very frequently, toxic symptoms of moderate to severe degrees exist when the patient has a gland of normal size. In these instances the gland is firmer in consistency than normal even though it may not be enlarged. Goiter is any enlargement of the gland or hyperthyroidism with or without enlargement of the thyroid.

In the teaching clinic, students not infrequently request consultation on a case diagnosed previously or by himself goiter, when the enlargement of the thyroid is apparent and not real. In a long thin individual with a dorsal kyphosis and a cervical lordosis, the anterior part of the neck may be unduly prominent, giving the impression of an enlargement of the thyroid gland when in reality it is normal in size and consistency. This frequently occurs and it is sometimes difficult to disabuse the patient

and even at times the student of the idea that the patient has a goiter. The patient may have been under the impression over a period of months or years that he had a goiter since there is a prominence in the neck even though the thyroid gland is normal. More confusing is the patient who does have a slight enlargement of the thyroid gland and who says she is nervous. A provisional diagnosis of goiter with toxic symptoms may have been made by the student when a more careful investigation may show that the nervousness of which the patient complains has no relationship to the thyroid gland and is in reality of such a nature that operation may result in an exacerbation of symptoms rather than in a cure. Such instances are seen frequently in the clinic. They are as instructive for teaching accuracy in the diagnosis of goiter as are cases of manifest goiter and they emphasize the necessity of restricting operation only in patients for whom operation is indicated.

The question as to which goiters should be subjected to surgical management and which should be subjected to more conservative therapy, is in some, but not all instances, controversial. It is not generally appreciated, certainly in lay circles, that in experienced hands a goiter operation is one of the safest of all major surgical procedures and, that the results are among the most gratifying following operations. I would outline the indications for operation for goiter as follows: (1) All toxic goiters; (2) all single adenomas of the thyroid gland; (3) non-toxic nodular or diffuse goiters large enough to produce pressure symptoms.

All toxic goiters deserve immediate surgical consideration. Surgical operation for toxic goiter takes precedence over another coexistent lesion even though the latter be of marked severity, such as a cancer, unless the coexistent lesion is an unavoidable emergency, for example, acute appendicitis. If, as existed in one of my patients, there is a carcinoma of the colon associated with an exophthalmic goiter, the exophthalmic goiter must be removed first

and operation for the carcinoma and colon should wait. If a laparotomy is done first, an exophthalmic goiter crisis may result with a fatal outcome. In the case cited, the goiter was removed and subsequently the carcinoma of the sigmoid colon was resected. The patient made an uneventful recovery following both procedures and now lives some six years after the completion of these operations. The same analogy maintains when pregnancy and hyperthyroidism coexist. Any attempt to interrupt the pregnancy is likely to result in a hyperthyroid crisis. In all such instances a thyroidectomy is indicated no matter at what stage of the pregnancy. This has been conclusively shown by Mussey, Plummer and Boothby.⁴ Even minor surgical procedures of an elective nature should never be done in the presence of hyperthyroidism. Fatal exophthalmic goiter crisis may follow the extraction of a tooth, the extraction possibly having been done in good faith with the idea that the foci of infection would be cleared up and that thereby the patient would be in better condition for thyroidectomy. The thyroidectomy should be done first. All toxic goiters should be operated upon soon after the diagnosis is made, not after a trial period of medication or conservative management. Such trials may result in prolonged chronic illness and most frequently fail to cure the patient. The risk for surgical operation may thereby be made greater. The risk of operation for toxic diffuse or exophthalmic goiter is slightly greater than that for toxic nodular or adenomatous goiter with hyperthyroidism, but again the morbidity for the patient with toxic diffuse goiter is generally greater than for the average patient with adenomatous goiter with hyperthyroidism.

Not all enlargements of the thyroid gland which are non-toxic deserve to be operated upon; certainly not diffuse colloid enlargements in young people nor colloid enlargements in adults which are small or moderate enlargements. Only when colloid goiters become extremely large do they deserve surgical consideration. When they are so



Fig. 2. Preoperative and postoperative views of patient with single adenoma in right lobe of thyroid gland. No hyperthyroidism was demonstrable and pressure symptoms were mild. However,

single nodules of this size in the thyroid gland should be removed because possibly such a lesion is or can become malignant.

large that they produce pressure symptoms then operation becomes necessary to remove them and restore that patient to health. Nodular goiters are likewise not all suitable for operation. If the thyroid gland is slightly enlarged and diffusely nodular, operation is not indicated if systemic symptoms and local pressure symptoms are both absent. However, if there is one single nodule in the thyroid gland it can be regarded as a tumor, a true adenoma, and then operation is indicated because of the possibility that such a nodule is a malignancy or may become a malignancy or may become toxic. Of course a tiny single nodule does not have to be removed but when they are sizable, causing discomfort, they should be removed and such goiters can be removed with an exceedingly small risk.

There may be all degrees of enlargement of the gland and this enlargement may occur into the chest in greater proportion than it does externally. In these instances sometimes pressure symptoms are relatively marked and the external goiter may be small. A good example of this is the patient shown in figure 3. She had a relatively small goiter presenting in the neck with the story that she had difficulty swal-

lowing and had not swallowed anything solid in six years. She had mild toxic symptoms. A fluoroscopic examination of the esophagus with barium showed obstruction of the esophagus by a substernal goiter. At operation the substernal extension was found to be impacted in the superior thoracic strait to such an extent that pressure on the esophagus was marked and dysphagia was an extremely severe symptom. Removal of the goiter resulted in a prompt cure so that the patient was able to eat solid foods for the first time in six years.

THE EVALUATION OF TOXICITY

It would be nice to have a test to determine accurately not only the degree of toxicity in hyperthyroidism, but also one which would establish with certainty the diagnosis in cases which are borderline and which are difficult to differentiate from tachycardia due to other causes such as neurocirculatory asthenia. The basal metabolic rate determination is still the best test for hyperthyroidism. It is a very reliable test. Cases with hyperthyroidism and with a normal basal metabolic rate are not common and whenever they do exist they are most likely to be adenomatous

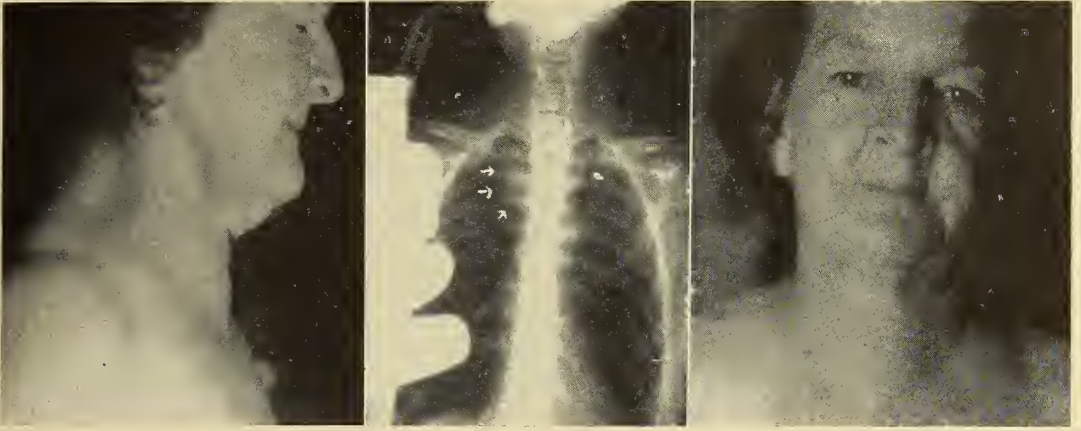


Fig. 3. Preoperative view of patient aged fifty, with goiter causing moderate toxic symptoms but severe pressure symptoms. She had not been able to swallow anything solid for six years. Fluoroscopic examination showed obstruction of the esophagus by the substernal goiter outlined in the x-ray by the arrows. The roentgenogram has also

been retouched to show the displaced tracheal shadow. At operation a substernal goiter was removed. The goiter was firmly impacted in the superior thoracic strait. After operation the patient swallowed all foods without difficulty. (See fig. 4).

goiters with hyperthyroidism with a normal rate. When the adenomatous goiters are sufficiently large to be producing toxic symptoms, their removal is indicated anyhow. The basal metabolic rate can be relied on fairly well for estimating whether a patient is toxic if the factors which may influence it, such as hypertension, or fever, are taken into consideration. It would also be helpful to have a test which would indicate exactly the degree of tox-

icity in the individual case and the probability of a crisis following an operation at a certain time. Such a test of course would be excellent help for selecting the optimum time for operation in the toxic case. Numerous tests have been devised for hyperthyroidism. Most of them fail to show accurately the presence or absence of hyperthyroidism or determine its degree in a range broad enough to justify a sense of reliance on the test in individual cases.



Fig. 4. Postoperative views of patient shown in figure 3.

Many tests show trends in large numbers of cases. Such a test perhaps is the blood iodine determination. Blood iodine determination is not a feasible test except for a few institutions, because of the necessary special laboratory essential for its performance and because after all it shows more a trend in large numbers of cases but is not to be relied upon entirely in the individual case. The test is too difficult and too expensive to perform for the average institution. The liver function test has been advocated as a guide to the degree of toxicity and an indication as to when the patient is ready for operation. This test does not give sufficient information consistently to be relied upon as an indication of the improvement of the patient or as an estimate of the optimum time for operation.

Two years ago* a new test was described by Althausen.^{5, 6} It has the advantage of being relatively simple and can be performed in any laboratory equipped to do accurate determinations of blood sugars. It is based upon the fact that in hyperthyroidism, sugars and salts are absorbed more rapidly from the gastrointestinal tract. Consequently the concentration of the substances in the blood stream becomes greater than in the normal individual for a similar period of time. In this test 40 grams of galactose is administered to the patient in 400 c. c. of water. Determinations for galactose are made on blood samples taken before administration of the sugar by mouth and at intervals of thirty minutes and an hour after the administration. In a normal individual the highest concentration of the galactose in the blood samples will be less than 30 milligrams per cent, whereas in hyperthyroidism concentrations of 70, 80, or over 100 milligrams per cent are frequently found. I have used this test in conjunction with the basal metabolic rate determinations and find its accuracy very consistent. In no instances has it been entirely wrong. In some instances in which the basal metabolism was less than plus 15, the test showed marked

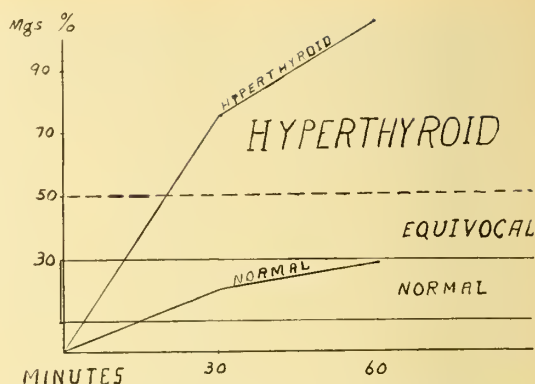


Fig. 5. Graph showing expected range of galactose concentration in the blood of normal and hyperthyroid individuals in the Althausen test. The test is very reliable and serves as a helpful adjunct to basal metabolic rate determinations in judging the presence of hyperthyroidism and its severity.

hyperthyroid reaction having over 70 milligrams per cent. This occurs in patients with adenomatous goiter with hyperthyroidism in whom the signs of toxicity are a rapid pulse, a very slight subjective nervousness, but with no weight loss and very little weakness; in other words, in patients with adenomatous goiters where cardiac symptoms are the predominant findings. In these instances the circulation of the blood is undoubtedly faster than in the normal individual and I wonder whether the explanation for the accuracy of this test is not the increase of volume flow of blood through the arteries of the intestinal tract, resulting in more rapid absorption of sugar used in the test. Not only is this test helpful in determining borderline cases, but it is also of help in showing improvement in the patient who is prepared for operation. This test in my experience is almost as helpful as the basal metabolic rate determination in indicating the presence or absence of hyperthyroidism or its severity. One criticism of it is its extreme sensitivity. For this reason a high test must not be regarded as unqualified indication of hyperthyroidism.

I have seen the Althausen test reported high indicating hyperthyroidism in cases in which the metabolism was normal where clinically the diagnosis was adenomatous

*At the meeting of the American Association for the Study of Goiter.

goiter with hyperthyroidism, but I have not seen it high (over 45) when the clinical diagnosis would not substantiate its indication of hyperthyroidism. Moreover whenever the basal metabolic rate and clinical findings both indicate hyperthyroidism, the Althausen test invariably and definitely indicates its presence.

SUMMARY

Goiters are seen not infrequently in this section of the South. They apparently occur more frequently in certain sections of Louisiana than in others and these regions of greater frequency are ones in which the people are presumably getting satisfactory amounts of iodine in their diets.

The indications for surgical management of goiter are: (1) All goiters with toxic symptoms; (2) all goiters with only one nodule or adenoma with or without toxic symptoms; (3) certain diffuse smooth or nodular enlargements of the thyroid gland without toxic symptoms when the enlargement is sufficiently great to cause local pressure symptoms.

The Althausen galactose tolerance test was discussed. It seems to be very accurate in estimating not only the degree of toxicity, but also in helping to distinguish borderline cases of hyperthyroidism from cases without hyperthyroidism.

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DISCUSSION

Dr. John H. Musser (New Orleans): I was very much interested in the distribution of goiter throughout the southern part of Louisiana. I would like to know if Dr. Mahorner has explanation, for example, as to why St. Tammany and St. Bernard should show such a discrepancy or why in the parishes near the end of the river, no cases

at all were found. I think the figures, however, do show very definitely that we, in Louisiana, should expect always to find goiter much more frequently than has been the general concept. As a matter of fact I remember hearing some years ago the statement made that endemic goiter was almost unheard of. A few years afterward a survey of school children came out showing a surprisingly large number of children having at least a visible thyroid.

One thing more, and that is that it is an exception, in so far as my experience is concerned, to see a negro or negress with the toxic symptoms of goiter. I should like to ask Dr. Mahorner his experience. It is true we see enormous thyroids sometimes; I have in mind a negress seen at the hospital who has a goiter about as big as a pumpkin, with apparently no toxic symptoms whatsoever.

Dr. Mahorner showed on the screen the indications for operation. I think that his grouping was possibly a bit too dogmatic. You remember he listed all hyperthyroidism; I would qualify that I think to certain degrees. A certain number of people, I think, who suffer from intercurrent conditions, for example, would not make good operative risks.

I would like to point out also that you have to take into consideration who is doing the operation. There is no question that thyroidectomy is an operation which requires skill and experience. Dr. Maes, I think it was, is responsible for the study made at Charity Hospital a few years ago, showing the mortality rate in the hospital; ten per cent for the patients operated on for thyroid disease, contrasted with The Mayo Clinic, for example, where the operation is done by one group or team of operators, the mortality was less than one half of one per cent.

I think there are a few people with mild symptoms of hyperthyroidism and sometimes those people will do just as well with x-ray or radium treatment as they would if they had an operation. Dr. Mahorner tactfully said he would not bring up controversy of whether to operate or give x-ray or radium treatment.

I would caution you also to be on the lookout for patients who have larval hyperthyroidism. I think we miss a great many of those patients; not as frequently as ten or twelve years ago before the time when basal metabolism examinations are made as routinely as are full blood counts, but certainly there are a considerable number of people who have nervousness, insomnia and are underweight and yet do not have the more or less classic expressions of hyperthyroidism.

Lastly, I would like to point out to you that in the examination of the patients often the student, and I presume the doctor also, forgets that the most practical way to feel enlargement of the thyroid gland is to stand back of the patient.

Dr. J. E. Heard (Shreveport): I feel that there is little doubt but that goiter in our community is

on the increase. Not having the exact figures, but judging from the increased number of patients we see at the Charity Hospital, there is either a decided increase in goiter or more patients are being hospitalized. We see much more goiter in the negro race than in the white race and, as should be expected, the majority of these cases are negro women.

In reference to indications for surgical interference, I can agree with Dr. Mahorner but should like to emphasize that the non-toxic nodular group with multiple nodules should be carefully watched, since a high percentage of these patients will at some time become toxic, and others will develop malignancy.

Laboratory tests, as to determining the degree of toxicity in toxic goiters are very unsatisfactory, as was stated by Dr. Mahorner. We feel that we can better evaluate a case by relying on clinical experience and repeated basal metabolic tests. As regards stage operations, I believe that one can tell better from the behavior of the patient on the operating table as to whether with the individual case should be staged or not. I have had no personal experience with the Althausen test, but feel that in a certain class of cases, those that are hyperthyroid with a relatively low metabolism, and borderline cases that this test is quite helpful.

A case of toxic goiter demands relief before any other type of elective surgical operation; nothing but an extreme emergency should receive operation before the hyperthyroidism is relieved. The mortality of subtotal thyroidectomy is one of the lowest of all major surgery, and should be around 1 per cent. These results however are only shown by men who are accustomed to handling these cases, as in the hands of the occasional operator the mortality is often quite high. In preparing a toxic goiter for operation do not lose sight of the fact that a high percentage of these persons have a damaged liver. In some cases the damage is severe, and this fact may be the difference between a good and bad result. Waller, Beaver and Pemberton, Boyce, Shaffer and others have called attention to liver damage in hyperthyroidism, and Beaver and Pemberton state that all persons who died in crises and came to autopsy, showed acute degenerative changes in the liver.

In using liver function tests we are best satisfied with the Quick hippuric acid test.

Dr. Howard Mahorner (In closing): Regarding the cause of distribution of goiter in certain parishes, I have an idea—of course it can not be proved—that the cause of goiter is not something negative, absence of iodine for example, but something positive; a goiterogenic substance that affects certain people. The lower part of the State is built up by Minnesota soil and I wonder if we are getting here some goiterogenic substance brought down the river. It is possible that that may be the explanation.

Goiter occurs in the negro more commonly than in white people, in this locality. In Charity Hospital 45 per cent of the patients are negroes and 55 per cent of the goiter cases are negroes. I believe there is no greater toxicity in the negro and that the explanation as to why negro mortality is higher cannot be made on that basis. They are having the same goiters and the same management will result in similar mortality rates.

I would like to show one slide to emphasize something Dr. Heard said. No matter whether it is an infected tooth or malignancy, the toxic goiter precedes any other elective operation. In pregnancy, the goiter should be taken out if it is toxic, and at any stage of pregnancy, but pregnancy should not be interrupted. Otherwise there is danger of precipitating a hyperthyroid crisis. This slide shows a good example to emphasize this principle. This patient is aged 45 years. Her goiter for several years was toxic and there was loss in weight from 95 to 66 pounds. There was every sign of toxicity. On physical examination a mass was found in the abdomen and the patient stated she had passed blood by rectum. A barium enema disclosed a filling defect caused by carcinoma of the sigmoid colon. Thus there was cancer and toxic goiter in the same patient. In this instance the goiter was removed first. On her thirteenth postoperative day complete intestinal obstruction occurred. Palliative methods were not effective and a transverse colostomy was done two days later. Six weeks later I removed the carcinoma of the colon. She then had two openings in the colon; one in transverse and one in descending. The transverse colon opening closed spontaneously after the spur was cut; the descending colon opening remained open, spilling some of the contents. She thought she had enough surgery at that time and refused to go back for two years to have the descending colon closed. Then it was closed. These operations were done in 1935. This is a postoperative picture (slide). This patient, who lived in New Orleans at that time, has since moved to Shreveport; she telephoned me today and said she weighed 117 pounds and was well. This is some six years after operation for two serious surgical lesions which she had at one time.

PUBLIC HEALTH AND THE GENERAL PRACTITIONER*

J. H. MUSSER, M. D.†
NEW ORLEANS

The Department of Health is essentially and primarily a division of the state government which deals with the mass prevention of disease. It deals with preventive medicine in its broad aspects and even some of the narrower fields. Departments of health and boards of health are developed as result of the inability of the individual practitioner to combat the preventable diseases. It is obviously impossible for a busy medical man to study an outbreak of typhoid fever, or to become familiar with the details of the construction of a sanitary privy, or to engage in a campaign to control the growth and dissemination of mosquitoes. Consequently these functions have had to be taken over by people trained in this particular field and who are able to give their entire time to it.

The Department of Health is not engaged in curative medicine in any sense. It is true that the units of the departments of health throughout the country have been called upon to assist in the campaign against syphilis but here again it is merely because of the expense and the impossibility of the practitioner of medicine giving to a large number of indigent patients the required treatment. The Louisiana State Department of Health does the administrative work in the treatment of the syphilitic indigent but for the most part this work is carried out by the local physicians where they are available. This applies to most of the parishes. In some fifteen of them, however, the local doctors have for various reasons found it impossible to work in the syphilitic clinics, consequently the carrying out of the treatment in some of the towns of the state has devolved upon parish unit directors. In the care of the crippled

child, curative or remedial measures are employed but such treatment is given solely by qualified practitioners of the state, selected from amongst the members of the Louisiana State Medical Society.

CONSULTATIVE SERVICES

The Department of Health is willing and anxious to give consultative service to the practitioner of medicine in any specific problem he may have, in matters of public health or even in the care of any given poor patient who may have one or another of the diseases which have a public health implication.

In the sanitary engineering department there are divisions having to do with the control of milk, of pure foods and drugs, of mosquito control, of securing pure water, the disposal of sewage and other problems which have to do largely with construction or investigation. The sanitary code, for example, requires the approval of the State Department of Health in matters having to do with such health measures as an adequate water supply and a satisfactory sewage disposal system for a community. These problems are on a large scale but even in the small problem of how best in one household to provide water and sewage disposal, help will be given by the Department of Health.

In the field of maternal health and child welfare, aided by very large contributions from the Federal Government, the state health organization is prepared to assist in the nursing services, in the care of the mother both before and after the birth of the child. It is prepared and has functioned as an organization to assist in the care of the child. That Louisiana has need of this particular service is exemplified by the infant death rate in the state. It might be said that there are 14 states which have a death rate of less than 40; these include Minnesota and Connecticut with figures approximately the same, namely 35. Going to the other extreme, Mexico has an infant death rate of 109, Arizona 94, Texas 67, South Carolina 66, and Louisiana 63. In other words, our state stands fifth from

*Read before the sixty-second annual meeting of the Louisiana State Medical Society, Shreveport, April 21, 1941.

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the bottom with 63 infant deaths for every 1,000 live births.

In the field of tuberculosis, the head of this particular division might be looked upon as a consultant who is willing and glad to help the practitioner in specific problems or in large scale efforts to control tuberculosis. The same statement applies to the division of pneumonia control. In the field of venereal diseases, again the division head and the parish health directors are anxious to see that all syphilitics who cannot afford to pay the private doctor, not only are treated but are followed up until the disease is cured.

EDUCATIONAL AIMS

In the division of crippled children, again through monies advanced by the Federal Government for the benefit of the crippled child, handicapped in any way, be it the after-effects of poliomyelitis, of burns, the disfiguring deformity of hairlip and cleft palate, or what not, the appropriate division is prepared to see that those children who cannot afford a private practitioner or the expense of prolonged treatment and of paying for this treatment, are given proper care by men engaged in actual practice who are skilled in their particular field.

The laboratory facilities of the Department of Health are open to all members of the state at any time. The laboratories are set up at five different centers so no one part of the state is far removed from a laboratory center where diagnosis can be made promptly of communicable diseases, and facilities are available in every way for the help of the doctor in the care of his patients who cannot afford these services. The list of the type and character of the examinations made in the laboratories, published in the official *Quarterly Bulletin*, increasing yearly by leaps and bounds, indicates that the doctors of the state are making use of laboratory facilities offered to them. The physicians of Louisiana should feel at liberty to call upon the laboratory at any time, anywhere, for help and assistance in elucidating some difficult problem in the diagnosis of communicable disease.

In the field of nutrition, educational talks and pamphlets are prepared for the benefit not only of the doctors but also for the laity. In the future, one of the important functions of the organization will be education. As of now, the various members of the staff are prepared to give educational talks to different lay groups or to medical groups on phases of public health control of disease and the prevention of conditions which arise through ignorance. When this particular division of medical education starts to function fully, the Department of Health will be ready to give the doctors information in the form of pamphlets or brochures which they in turn will make use of in disseminating knowledge of the preventable diseases and materially to extend the lecture-talk program.

OFFICIAL REPORTS

A plea is made for the more hearty cooperation of the doctors in the reporting of those diseases which by law are required to be reported. It is absolutely impossible properly to take care of epidemiologic problems unless it is known just what these problems are. The only way this information can be obtained is through the help and assistance of local doctors. Their assistance is early besought by the division of epidemiology.

We have endeavored to make more simple and easier the reporting of births and deaths. Heretofore there have been scattered throughout the state a very large number of registrars; often it was inconvenient and difficult for the doctor to discover which registrar should take care of the reporting of births and deaths that take place in his community. In the future these reports will go to the unit directors, which will simplify very materially the mechanisms whereby deaths and births are recorded. It might be pointed out that the totally unsatisfactory method that has existed in the past where births were recorded by registrars whose writing was illegible, whose spelling was hopeless and whose reports were often delayed, brought about a situation which made it almost impossible to deal expeditiously and promptly

with the sending of birth certificates and proof of the date of births to registrars of the selective service or to social security authorities. At one time last year there were over 3,000 unanswered requests for this desired information. Often it would take one worker several days to trace down one single authentic birth report, thus tying up the work of the department as a whole.

The Division of Public Health Statistics is a depository of the legal records of persons who are born and who die in Louisiana and is a source of statistical information on the status of the health of the people in this state. In carrying out its functions, this division is dependent upon the physician for the reporting of complete and accurate certificates of birth and death and morbidity reports of communicable diseases.

The importance of this division as a depository for the legal evidence of age, citizenship and parentage of people who are born in this state is forcibly brought out by the difficulty that many citizens are encountering in filing a delayed certificate of birth, that is, a certificate which is registered several years after birth. Although the Department of Health, in cooperation with health departments of other states and the Federal Government, has adopted a uniform nationwide procedure to be used in assisting persons in establishing proof of age and citizenship in order to gain employment or to secure benefits offered by the Federal and state governments, this is a long and costly procedure and we must look to the physician to report births properly so that in the future there will be no question concerning the legal status of citizenship.

I should like to emphasize at this time that the Division of Public Health Statistics, which you have known in the past as the Bureau of Vital Statistics, can act only as a service agency in assisting citizens to meet the requirements of their employers or agencies which are calling for acceptable proof of their citizenship and age. These requirements which seem lengthy, costly and which might sometimes even seem to question the integrity of the applicant, are

not regulations that have been drawn up solely by the Department of Health but constitute minimum legal standards recommended by the Federal Government and all states.

As an agency which publishes and distributes statistical information on the status of the health of people in Louisiana, the Division of Public Health Statistics is again dependent upon the physician for the statistical items called for on certificates of birth and death and morbidity reports.

COOPERATIVE SERVICE WITH ALLIED BOARDS

The Department of Health, in cooperation with the state dental society, has inaugurated a new system whereby a plan for dental instruction proposed by the state dental society has been put into effect. This scheme is largely educational and provides for the training of the school children in dental hygiene. Instead of sending trailers all over the state to extract teeth of the indigent, the dental society feels, and in this we concur, that it would be very much better to prevent the horrible mouth conditions which are found so widespread throughout the state, rather than to attempt to take care of the end results which can be handled by almost any one, in other words preventive dentistry.

Just yesterday, as of the date this was written, an arrangement was completed with the president and secretary of the state pharmaceutical society whereby our inspectors and their inspectors would work hand in hand in order: (1) To prevent the sale of illegal drugs and preparations; (2) to prevent the sale, by those who are not qualified, of concoctions and compounds, which preparations can be made solely by registered pharmacists; and (3) to stop the making of compounds and sale of drugs which are prepared under unsanitary conditions.

COOPERATIVE SERVICE WITH ALLIED BOARDS

The Department of Health also works hand in glove with the veterinarians of the state in assisting them in their control of drugs and medicines sold for the use of domestic animals. These three cooperative endeavors have been suggested by the or-

ganized members of the several professions. We have been delighted indeed to follow out their suggestions and work with them.

THE SEVERAL DIVISIONS

In the reorganization of the State Department of Health there will be eight new divisions. This is subject to the action and approval of the Board of the Department of Health. These divisions are:

"1. *A Division of Local Health Services*, under the direction of a Division Chief, who is also the Assistant Director of the Department of Health. There shall be at least three associate chiefs of this division, who shall be in charge of district offices established for appropriate districts of the State. Each district office shall also have on its staff a generalized nursing supervisor, a sanitation supervisor and the necessary specialized consultants, as well as clinical help.

"2. *A Division of Public Health Nursing*, which shall be under the direction of the Chief Public Health Nurse, and which shall consist of a staff of statewide advisory staff nurses, generalized and specialized.

"3. *A Division of Administrative Services*, which shall be under the direction of a Division Chief, who shall have the necessary subordinate staff to serve all divisions of the Department in the fields of accounting, property supply and control, communication services, printing, duplicating, transportation and personnel management and records.

"4. *A Division of Laboratories*, which shall be under the direction of the Chief of the Division of Laboratories. There shall be a staff to coordinate and standardize the laboratory procedures of all central and branch laboratories under the jurisdiction of the Department. There also shall be the necessary chemists, bacteriologists, pathologists, serologists and technicians to perform adequately the laboratory work of the Department.

"5. *A Division of Public Health Statistics*, under the direction of a Division Chief. This division shall have three major sec-

tions, each under the direction of an appropriate section head, to cover the fields of registration, tabulation and analysis of public health reports; including birth, death, stillbirth, morbidity reports, marriage, divorce and reports of the Health Department's activities.

"6. *A Division of Public Health Engineering*, under the direction of a Chief Public Health Engineer. There shall be sections on water supply and waste disposal, mosquito control, malaria control, food and drug control and general sanitation under appropriate section heads. It shall be the duty of this Division to formulate policies and plans for the promotion of adequate control of general environmental sanitation in all its phases.

"7. *A Division of Preventive Medicine*, under the direction of a Division Chief and consisting of sections of epidemiology, tuberculosis control, venereal disease control, maternal and child health, crippled children services, nutrition and dental hygiene. Each of the sections shall be under an appropriate section head who shall be charged with the development of all specialized health programs to be administered through the local health units, or on a statewide basis in non-unit parishes.

"8. *A Division of Education*, under the direction of a Division Chief who shall plan for, and carry through, educational matters concerning the health and well-being of the community. This will be for the purpose of keeping physicians in the state informed as to latest developments in the communicable diseases as well as other diseases which come under the Department of Health and will also instruct the laity as well."

All of these divisions have been organized except the last, which will be done probably within the next six months.

DIVISION OF LOCAL HEALTH SERVICES

In the reorganization greater autonomy will be given to each of the local parish health units. In other words, the doctor in charge of the parish health unit is to be in complete charge of the unit subject only to a few rules and restrictions to make sym-

metrical the work throughout the State. The division heads in the central office will act largely in a consultative manner in order to help out the health unit directors with the various problems that may come up from time to time in their parishes. Lastly, there has been brought out some 40 pages of merit system regulations which, when made effective, will apply to all personnel of the Department, including parish health units. In other words, it can be concluded that after a person has served a probationary period and is found qualified for his or her job, employment will be permanent and not subject to changes in the political set-up of the State.

CONCLUSION

The Department of Health, through its Director, Assistant Director and all other personnel, is anxious in every way to cooperate with the medical profession so that the State of Louisiana may be given a health service which will be equal to, or superior to, any other state in the Union. The Department of Health will cooperate with all other state ancillary services. The Department of Health seeks the cooperation of public-spirited lay individuals in carrying out its problems. The hoped for attainment of a superior service can only be obtained with the help and aid and the assistance of the medical profession and the broad-minded laity.

DELAYED BIRTH REGISTRATION IN LOUISIANA

EDMUND F. RICKETTS

MONROE

AND

LAWRENCE A. WILSON

NEW ORLEANS

America, in its preparation for possible war, has created a demand for the birth certificate which is causing statistical divisions of state and city governments throughout the nation to be deluged with requests for the currently all-important documents.

In Louisiana, the New Orleans office of the Division of Public Health Statistics of the State Department of Health is receiving

such requests at the rate of nearly 2,000 per month. Natives of the state are clamoring for this proof of citizenship, age, parentage and other information included in the birth certificate; and the unfortunate circumstance is that a large percentage of these requests cannot be met immediately because the desired information is not on file.

During the first half of 1941, 4,087 requests, or 37 per cent of the 11,150 demands received by the division, were from persons whose births had not been registered. These individuals are now put to considerable inconvenience and possible financial loss.

Requests to the Louisiana office have come not only from this state but also from widely scattered points throughout the nation, with an especially heavy flow from those areas in which defense industries are located.

The birth certificate, in these days of chaos, is often prerequisite to employment in private industries working on defense contracts. It is called for by the armed forces and civil service of the country and frequently is necessary for the establishment of certain claims under state or federal law. In many instances school admission regulations require the certificate. In addition to these and other specific occasions in which the birth certificate is demanded, the individual may simply want to satisfy that human desire for a feeling of security which comes from the definite knowledge that one's "papers are in order."

Regardless of the reason for the request, every citizen is entitled to the benefits which accrue from properly registered births and the Division of Public Health Statistics in Louisiana is making every effort to supply unregistered applicants with certificates through its delayed registration procedure.

Reasons for the appalling deficiency in Louisiana birth registration, exclusive of Orleans Parish, are fundamentally two in number:

First, although scattered local jurisdictions in Louisiana began to compile per-

manent records of local births and deaths before that date, it was not until 1914 that the State Legislature established a statewide depository with legal responsibility for collecting birth and death certificates—the former Bureau of Vital Statistics and now, with greatly expanded duties, the Division of Public Health Statistics. Louisiana's delay in assuming this important function means that the vast majority of her population, twenty-eight years of age and over—nearly 65 per cent of the total number—are without permanent records of their births in the files of the division. These deficiencies in birth registration will be of declining importance as a larger and larger proportion of the state's population comes to be made up, with the passing of the years, of those born in or after 1914. Gradually, moreover, a large number of those born before 1914 will come to be registered through the division's delayed registration.

The second factor, a matter of far greater ultimate significance, is the incomplete coverage of birth certificate files in Louisiana due to the negligence of hospitals, physicians and midwives in carrying out their legal duty to report to the State Division of Public Health Statistics those births which they attend. A recent check of the completeness of birth registration in Louisiana provides impressive documentation for this statement. This study, which covered the four months, December, 1939—March, 1940, reveals that approximately 12 per cent of the 15,450 births occurring in Louisiana, exclusive of the Parish of Orleans, during those months were not registered with the division.

A tabulation of these 15,450 births according to the class of attendant reveals that physicians in hospitals attended approximately 26 per cent of the four-month total, physicians outside hospitals approximately 34 per cent, and midwives about 40 per cent. A negligible percentage of the total number was handled by other classes of attendants, or by unidentifiable persons. Of the births attended by physicians in hospitals, approximately 2 per cent were not

reported to the division. While the reporting record of hospitals may seem poor, that of physicians outside hospitals was worse, with 20 per cent of the births they attended unreported. Yet midwives, frequently isolated and often hardly literate, failed to report only about 12 per cent of the births attended by them.

Physicians of the state should bear in mind that while the Division of Public Health Statistics carries the legal responsibility for collecting birth certificates and maintaining permanent files of birth records, they themselves are legally responsible for reporting births. The division can only take steps to facilitate reporting by physicians, and it is currently engaged in an earnest attempt to make the physician's duty easier to perform. Without the cooperation of physicians throughout the state, however, birth registration in Louisiana must continue at an exceedingly poor level.

Aside from questions of responsibility for the inadequate coverage of records of births which have occurred since 1914, the division has, for more than a year, been confronted with two inescapable facts: first, the incompleteness of its own records of Louisiana births; second, the demand made upon private individuals by business and by governmental agencies for records clearly demonstrating the facts of birth.

These two realities have confronted not only the Louisiana Division of Public Health Statistics, but every state and city vital statistics office in the country, numerous state and federal agencies and many private industrial establishments as well. It was realized that many individuals would be required to present proof of facts of birth to more than one governmental agency or private organization; yet, at the same time, it was recognized that serious hardship would be worked by the diverse requirements of different agencies. The sound solution to this problem seemed to be to fix standards of proof which would meet the requirements of the largest possible number of organizations requiring substantiation of the facts of birth, and to have proof certified to by that agency in each

state which normally deals with such matters. The logical site for these certifying duties seemed to be the vital statistics office in each state or large city—in Louisiana, the Division of Public Health Statistics, for the state outside New Orleans; and the Orleans Parish Recorder of Births, Marriages and Deaths.

These duties have provided an opportunity for expanding the coverage of existing files and to check on the completeness of records of births occurring in or after 1914.

The demand made upon the division, as upon similar agencies in other states, was obviously for requirements of proof of the facts of birth which would stand up under legal scrutiny. After long deliberation and frequent consultations with governmental and private establishments and close study of relevant statutes and court decisions, the Louisiana Department of Health adopted standards comparable to those of certifying agencies in the states which now enjoy greatest prestige with organizations demanding unquestionable evidence as to birthdate, birthplace and parentage.

What are the requirements now effective in Louisiana for the registration of births subsequent to the month of their occurrence? To explain these clearly, it is necessary to classify applicants for delayed registration into two broad groups: first, those applicants who have not yet reached their fourth birthday; second, those four years old and over.

For delayed registration of the first class, children under age four whose births were not registered during the months in which they occurred, the following steps should be taken, either directly or through the nearest local Health Unit:

1. Send to the Division of Public Health Statistics in New Orleans the child's full name, date of birth, place of birth, his father's name and his mother's maiden name, and ask that a search be made to determine whether the birth has been registered. The names of the child and parents must be those as of the time of birth since indices will not carry subsequent changes of

names. Such a search is essential in every case in order that the Division may not accumulate a large number of duplicate certificates and that the inconvenience of securing a second certificate may be avoided. If a birth certificate is on file, the person acting on behalf of the child will be notified of that fact, or if a certified copy of the birth certificate has been requested, that will be sent. After a search of the Division's files has shown that a birth certificate is not on record, but only after this has been done, the child's agent will be sent a Certificate of Live Birth form with an affidavit form printed on the reverse side.

2. This certificate form should be filled in completely, the signature of the attendant should be obtained if that is possible, and one parent must swear before a notary public as to the truth of statements made on the face of the certificate.
3. After the certificate has been completed and an affidavit made by one of the parents, the certificate should be forwarded to the Division of Public Health Statistics in New Orleans. The birth will then be registered with the Division, and either a notification of registration or a certified copy, according to instructions given to the division, will be sent to the person acting in the child's behalf.

For those whose births were not registered prior to the fourth birthday, requirements are somewhat more exacting. The essential steps for delayed registration of applicants in this category, which may be taken directly or through the nearest local Health Unit, follow:

1. The applicant or his agent should send to the division the same information required for those persons under four years of age as outlined above. This information must be furnished to permit a search even though the applicant was born prior to 1914 and assumes that his birth is not registered.

After a search of the division's extensive indices has shown that no certificate has been filed previously, the applicant will be sent a Delayed Certificate of Birth form and detailed instructions regarding delayed registration.

2. The upper half of this delayed certificate form, which calls for only essential data constituting legal evidence of facts concerning the registrant's birth must be filled out and signed by the applicant before a notary public and returned to the Division of Public Health Statistics in New Orleans.
3. The Delayed Certificate form must be accompanied by true copies or originals of records supporting statements the applicant makes as to the facts of his birth. A wide range of records is acceptable, such as the family Bible, attending physician's office record, Church, school, insurance, employment, military service and many other records which most persons make in the course of their normal activities. There are three limitations on the number and kind of records which are accepted in proof of the facts of birth:
(a) If at least one of the records supporting statements as to the applicant's birthdate, birthplace, father's name and mother's maiden name was made before the applicant's fourth birthday, only one additional record substantiating each of these four facts need be submitted—or a total of two records supporting each of the four facts mentioned above; if however, the applicant is able to secure no records made before his fourth birthday, three records supporting each of the facts must be submitted. (b) The second restriction is that no record made within the past five years will be accepted as one of the two or three records necessary as supporting evidence, although such a record will be considered when the application is reviewed by the division. (c) Finally, only one affidavit based solely upon

personal knowledge of the facts of birth can be accepted in substantiation of each of the four essential facts mentioned above.

4. Upon completion of the above steps the applicant will receive notification that his birth has been registered or a certified copy of the Delayed Certificate of Birth, according to the instructions he has given to the division.

Thoughtful consideration of these requirements and the situations evoking them will bring realization that the division's standards are not severe. There is clear justification for differentiating between children under four and persons four years of age and older. In the first place, recollection of attendant and parent regarding a child under four is more likely to be clear and complete than where an older person is involved. Furthermore, aside from baptismal and family Bible records, few children of less than four have had occasion to make any permanent record of the facts of their birth. The fourth birthday, moreover, is too far removed from the school-entrance age to provide incentive for a self-serving declaration on the part of ambitious parents who would evade school-age laws. At the same time, however, far-sighted parents whose child's birth has not been previously registered have a relatively simple means of establishing the facts of birth. More liberal interpretation of requirements may also be expected regarding children between the ages of four and twelve.

Many members of the medical profession in Louisiana have been disturbed by the fact that the signature of the medical attendant does not alone suffice to establish the facts of a birth which occurred several years before the date on which registration of that birth is sought. There are, however, excellent reasons for the Division of Public Health Statistics' reluctance to accept the attendant's signature alone. Courts of law, it is true, have long treated a birth certificate made within a short time of birth as a highly privileged document in establishing points at issue in legal disputes. The courts have accorded this special recognition to the

signature of the attendant, however, not because the attendant was frequently, though by no means in all cases, a physician—a member of a highly respected profession, but because, with the certificate itself completed within a short time of the birth, it has been felt that there was little opportunity to forget the facts and less reason for unintentional misstatement.

The requirements surrounding supporting documents are a source of frequent irritation, yet they are not so unreasonable as they appear to be at first glance. The number of affidavits based upon personal knowledge alone must be limited because of the obvious ease with which self-serving affidavits may be obtained. Records less than five years old must be excluded in order to insure that supporting records were not made with a view to meeting the demand for proof of the facts of birth. Records prior to the fourth birthday are clearly entitled to preference over others, for records made within a short time of birth are less likely than others to have been exposed to the hazards of fading recollection.

Frequently it is American citizenship that has to be established, and established to the satisfaction of the impersonal hiring agent of some industry which may be subject to heavy legal penalties for failure to ascertain the citizenship status of its employees.

Substantial material benefits under state or federal law often depend upon date or place of birth, or parentage, and that fact must be definitely proved to a governmental official who can ill afford to pay public funds to private parties who are not, under law, entitled to them. These representatives of public and private agencies must know definitely that statements about the facts of birth have been unquestionably proved. They can have such assurance only if the agency which certifies to the facts of birth has their full confidence. And confidence will come only if the Division of Public Health Statistics has acceptable standards of proof for the facts to which it certifies. Had standards unacceptable to the agencies requiring proof of the facts of birth not been adopted by the division, a Louisiana state Certificate of Delayed Birth registration would be of questionable value.

CONCLUSION

Despite occasional hardships for some individuals and the temporary overburdening of public agencies resulting from the present emphasis upon proof of the facts of birth, real and lasting benefits may be expected to accrue. The public generally and the medical profession in particular should come to recognize more clearly than before the importance of registering births at the time they occur.

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OFFICIAL RECORDS OF BIRTHS

Elsewhere in the Journal are two communications, both calling attention to the importance of recording births promptly and immediately after the birth of the child. The reason for these appeals lies in the fact that at the present time birth certificates are required by a goodly portion of the population of this country for various and sundry reasons. A man is called before a Draft Board and has to have exact proof of when he was born; people going up for governmental positions have to prove

that they were born on a certain date; people seeking all kinds of defense positions must prove not only that they are Americans by birth, but also the date of their birth must be known. It is also prerequisite for social security benefits. There are many other possibilities too numerous to mention which require a birth certificate to show exactly when the applicant for the position, job, or what not was born. As a result of the neglect of physicians in the past the Vital Statistics Departments of state and federal governmental agencies have been literally swamped with requests for delayed birth registration certificates. In a recent number of one of the weekly news publications it was stated that the Bureau of the Census in Washington had had to put on 500 new employees to take care of this demand. In the Division of Vital Statistics of the Louisiana State Board of Health, the requests for such delayed birth certificates have literally overrun the staff, and, in spite of new recording machines to simplify the task and in spite of considerable increase in the personnel, necessarily there has been considerable amount of delay in filling these certificates.

Delayed birth certificates coming in after fifteen, eighteen, twenty, or twenty-five years often require hours of research, and the seeking of facts to prove the person was born on such and such a date requires a great deal of minute study of past records. These birth certificates that are made out years after birth, in order to be valuable to the U. S. Government, must have certain facts and proofs sworn to by competent individuals, which may seem to the applicant as being more or less red tape. However, the Government does require definite proof of the date of birth, and unfortunately will not accept the mere statement of the doctor who attended the mother at the birth of the child many years ago. This seems to be reasonable. A doctor with a large practice and a great many deliveries certainly cannot be expected to remember the exact date of the month, or even the year, in which one of his numerous adult patients was born.

It might be noted that the War Department has recently issued a memorandum to all present and prospective Army and Navy contractors and sub-contractors relative to requirements of proof by employees of their American birth. In this memorandum it is pointed out that the standard procedure must be employed. This procedure requires documentary evidence from two independent and different sources proving each of three facts:

1. When the man was born;
2. Where he was born;
3. Who the parents were.

In view of the fact that so many of these delayed birth certificates are absolutely essential to the individual, it might be well to spread the information that there is a jam in the departments of vital statistics in the offices of the various state health departments. Unless the certificate is absolutely essential at the time, people should not request them just at the present. Apparently there has been more or less a mass psychologic demand for these certificates even if they are not needed. A man who knows that many of his neighbors apply for birth certificates will think that he should have one immediately and puts in a request for it although it is not needed, or will not be needed for some time. It would be much better for these people to wait until the present congestion has been relieved.

On account of the present impasse and in order to obviate this in the future, it is earnestly requested that the physician fill out birth certificates promptly. Had this been done in the past, the present difficulty would not have arisen. There certainly will not be future trouble if the doctors will cooperate and will report the births of children that they have delivered at the time of the mothers' confinements.

THE POLIOMYELITIS SITUATION

During the past three months, there has been occasioned a great deal of mental anguish in the minds of the laity concerning the dreaded scourge, poliomyelitis. The fear of the disease and the desire of information have resulted in the physician's

being importuned continuously for advice what to do and for information of how widespread is the disease.

The following data can be given concerning the incidence of poliomyelitis in some of the southern states surrounding Louisiana. The disease has been extremely prevalent in Georgia, Alabama, and Florida. To the west of Louisiana, there have been very few cases. In Texas, for example, May through July, there have been reported only 19 instances of this disease; in Arkansas during the same period of time, 7 cases. On the other hand, in Georgia, June, July, and through August 9, there have been 373 cases, with Fulton County having the largest number. In Alabama, there were only 13 cases from January through May. Eleven new cases were reported in June and then the incidence rose extremely sharply, so that up until August 9, nearly 300 cases were reported. In the last week, for which the information is available, the week of August 9, 81 new cases had been found. The total for the state for the year up to August 14 equals 344 cases. In Florida, from January 1 through August 2, there were 185 patients found to have poliomyelitis.

In Mississippi, the incidence has not been great. In May and in June, there were six cases reported each of these months. In July there were 30 cases and so far, at the time this was written, on August 20, there have been only nine new cases reported. The two Mississippi counties, which are noted for their recreational facilities, and where many Louisianians go during the summer, have not reported any cases. Hancock County, with Waveland and Bay St. Louis and Harrison County, with Pass Christian, Gulfport, and Biloxi, have so far been free of poliomyelitis. In the adjoining county, Jackson, there have been two cases in Pascagoula.

In Louisiana, the incidence of poliomyelitis has been small. So far from the first of January to August 16, there have been 31 cases listed, as contrasted with 43 in the same period of time last year. No parish has had more than two cases except Grant

and Lincoln, with three each, and East Baton Rouge, with five.

Although Louisiana has been singularly fortunate in the year in which poliomyelitis is rife in having few cases, nevertheless, the poliomyelitis season is now on, and it is quite possible that the disease may spread from the eastern southern states to those further west. It behooves the physician to be on the watch for these patients. It is not known definitely how the disease is transmitted, but epidemiologically, there must be personal contact in most instances. It would be wise to segregate for a few days at least, all children having fever of undetermined cause, mild respiratory symptoms, or other evidences of disease which can not be explained. These children should be kept apart and away from their playmates, and their brothers and sisters.

It is advisable, if possible, to make the diagnosis of poliomyelitis before paralysis has taken place. Especially is this important for it is during the preparalytic stage at that time only that convalescent serum or blood serum from an adult will be effective. When paralysis ensues, the virus is fixed in the tissues of the central nervous system and convalescent serum or chemotherapeutic agents can not reach the pathogenic virus that is producing the paralysis. After paralysis has taken place, all that can be done is to keep the child quiet and to keep the affected limb absolutely at rest, preferably with a splint. After a period of 6 weeks to two months, then active treatment may be instituted to assist in restoring the normal functions to the affected muscles.

CERVICAL RIB

A cervical rib is by no means unusual. It is often found in the routine roentgenologic examination of the chest, and often is entirely innocuous, producing no symptoms whatsoever. However, there are certain groups of people with cervical rib who have symptoms that may be, according to Edwards*, both neurologic and

vascular. These symptoms may be constant or spasmodic. Because the expressions are of these two types, the possibility that numbness or pain in the lower arm or certain vascular symptoms may be dependent upon cervical rib is often forgotten, and the actual etiology of the condition is not discovered until a considerable period of time has passed.

The symptomatology of this condition includes numbness and tingling of the arm, usually the forearm and the hand. There may be muscular weakness and wasting in the hypothenar or thenar groups of muscles. The vascular symptoms include transient attacks of blanching or cyanosis of the fingers or even entire hand. The subjective and objective expressions of cervical rib may be initiated or exaggerated by variations in position of the neck. At times, there is pain in the neck, radiating to the shoulder, and once in a while the blood pressure may be lower on the one side, or there may be changes in the radial pulse on the affected side. In the examination of the patient, the rib may be palpated at times, or may be actually visible. Pulsation of the subclavian artery is often more pronounced on the one side than on the other. The symptoms of cervical rib, or of the scalenus syndrome, may be exaggerated by pulling the arm down, and having the patient turn their head sharply to the opposite side. The chin, however, is tilted towards the involved side, while simultaneously the patient takes a deep breath. This is known as the scalenus maneuver. According to this author, Edwards, the neurologic symptoms are dependent upon impingement of the lower trunk of the brachial plexus on the cervical rib. The question arises as to the mechanism of production of the vascular symptoms. It is quite likely that they depend on actual contact of the rib and the subclavian artery, but Murphy and others believe that the scalen-

*Edwards, E. A.: Nonarterial disorders simulating disease of the peripheral arteries. *New England J. Med.*, 225:91, 1941.

us anterior muscle compresses the artery and nerve against the rib.

It is often the relatively common things that are forgotten. Many a patient has been thought to have a peripheral vascular

disease of a single extremity, or to have a peripheral neuritis when the real cause is cervical rib, which can be visualized readily by x-ray, and which can be easily removed by operation.

TRANSACTIONS OF ORLEANS PARISH MEDICAL SOCIETY

During the month of August the Society has been in vacation. No meetings have been held this month. The first fall meeting will be a special meeting called for September 29, 1941, at which time Dr. Edward H. Cary will be guest speaker. Dr. Cary will discuss in detail the plans and activities of the National Physicians' Committee. All members are urged to attend.

NEWS ITEMS

Dr. Charles J. Bloom recently conducted the yearly Round-Up, sponsored by the Parent-Teachers Association of Bay St. Louis.

Drs. Lewis A. Golden, Charles S. Holbrook, W. J. Otis and H. R. Unsworth were guests of the Lauderdale County Medical Society at a recent meeting of the organization at Meridian. Dr. Golden presented a paper on Recent Views on the Value of Shock Treatment in Mental Diseases: A

Review of its Advantages and Limitations. Dr. Otis was the narrator of the evening.

At a recent meeting of the Executive Committee of the Society it was unanimously agreed that the Orleans Parish Medical Society invite the medical personnel of the armed forces of the United States, stationed in this City during the present emergency, to all scientific meetings, and extend to them the privilege of using the library.

Dr. Rudolph Matas was presented the jewel of the Order of Carlos J. Finlay as the sole survivor of the famous Chaillé Yellow Fever Commission, at ceremonies during the Lions International convention, July 22-25.

Dr. Ernest Carroll Faust was recently appointed instructor at the Army Medical School in Washington to assist in a special course on tropical diseases.

LOUISIANA STATE MEDICAL SOCIETY NEWS CALENDAR

PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
East Baton Rouge	Second Wednesday of every month	Baton Rouge
Morehouse	Second Tuesday of every month	Bastrop
Orleans	Second Monday of every month	New Orleans
Sabine	First Wednesday of every month	
Second District	Third Thursday of every month	

NEW ORLEANS GYNECOLOGICAL AND OBSTETRICAL SOCIETY

The New Orleans Gynecological and Obstetrical Society and the Louisiana Gynecological and Obstetrical Society will be hosts to the Central Association of Obstetricians and Gynecologists at their thirteenth annual meeting, which will be held in New Orleans on October 2-4, 1941, with headquarters at the Roosevelt Hotel. Dr. H. B. Alsobrook, of New Orleans, is chairman of the local committee on entertainment.

The guest speaker for this meeting will be Dr. Phillip F. Williams, of Philadelphia. The scientific sessions will begin daily at 9:00 o'clock and will include papers on: The Value of Gynecography in

the Diagnosis of Ectopic Pregnancy, Ruptured Ectopic, Uterine Bleeding Due to Benign Lesions, A Review of 75 Cases of Eclampsia with Particular Reference to Late Cardio-Vascular Renal Effects, the Use of Uterine Packs Impregnated with Sulfanilamide, A Study of Prematurity, Diaphragmatic Hernia in the Newborn, Office Curettage for Prolonged and Resistant Uterine Bleeding, and talks on Postgraduate Education.

In addition to this, a scientific program on obstetrics will be presented at the Charity Hospital at 2:30 p. m. Thursday, October 2. Dr. David I. Hirsch, of Monroe, President of the Louisiana Gynecological and Obstetrical Society, will preside at this meeting. On Friday afternoon, 2:30 p. m.,

a similar program on gynecology will be presented with Dr. Lucien LeDoux, President of the New Orleans Society, presiding.

Various entertainment features have been arranged for, and as these sessions will be open to all the members of the Louisiana State Medical Society, it is hoped they will make plans to attend this very outstanding meeting.

Lucien A. LeDoux, M. D., President.

RETURN YOUR INFORMATION CARD FOR THE DIRECTORY PROMPTLY

About September 1, an information card will be sent from the headquarters office of the American Medical Association to every physician in the United States and Canada. The information secured is to be used in compiling the Seventeenth Edition of the American Medical Directory.

Before filling out the information card, read the instructions carefully. Physicians are especially urged to state whether or not they are on extended active duty for the medical corps of the United States Army and Navy. Fill out the card and return it promptly whether or not a change has occurred in any points on which information is requested. If a change of address occurs before March 1, 1942, report it at once. Should you fail to receive a card before the first of October, write at once to the headquarters office stating that fact and a duplicate card will be mailed.

CIVILIAN DEFENSE

The U. S. Director of Civilian Defense has appointed the following Medical Advisory Board to assist the Medical Division of the Office of Civilian Defense:

- Dr. George Baehr, New York, Chairman
- Dr. Robin C. Buerki, Madison, Wisconsin
- Dr. Elliott Cutler, Boston, Massachusetts
- Dr. Oliver Kiel, Wichita Falls, Texas
- Dr. Albert McCown, Washington, D. C.
- Dr. Fred Rankin, Lexington, Kentucky

LOUISIANA DOCTORS IN MILITARY SERVICE

A study has been made by the Committee on Medical Preparedness of the number of doctors in the state, the ratio of the doctors to the population, and the number who have been called to military duty. Recapitulation of these figures is as follows: Total population as of December 31,

1940	2,363,880
Number of physicians in active practice as of December 31, 1940 (included in this group are 17 full time health officers and approximately 150 interns)	1,957*
Physicians called for military duty to July 31, 1941.....	173
Louisiana ratio of physicians to population as of July 31, 1941: 1 physician to 1,325 persons.	

It may be of interest to the physicians of Louisiana to know the number of doctors in each parish together with the population of the said parish. It will be noted that the number of doctors per unit population is very much greater in large urban centers than in the parishes in the relatively small population group.

Parish	Population	Number of physicians in active practice
Acadia	46,260	26
Allen	17,540	8
Ascension	21,215	14
Assumption	18,541	9
Avoyelles	39,256	18
Beauregard	14,847	6
Bienville	23,933	12
Bossier	33,162	9
Caddo	150,203	182
Calcasieu	56,506	42
Caldwell	12,046	6
Cameron	7,203	3
Catahoula	14,618	4
Claiborne	29,855	15
Concordia	14,562	8
DeSoto	31,803	14
East Baton Rouge.....	88,415	97
East Carroll	19,023	5
East Feliciana	18,039	13
Evangeline	30,497	10
Franklin	32,382	15
Grant	15,933	6
Iberia	37,183	24
Iberville	27,721	16
Jackson	17,807	7
Jefferson	50,427	11
Jefferson Davis	24,191	12
Lafayette	43,941	43
Lafourche	38,615	19
LaSalle	10,959	12
Lincoln	24,790	14
Livingston	17,790	8
Madison	18,443	8
Morehouse	27,571	13
Natchitoches	40,997	21
Orleans	494,537	789
Ouachita	59,168	65
Plaquemines	12,318	8
Pointe Coupee	24,004	8
Rapides	73,370	78
Red River	15,881	9
Richland	28,829	12
Sabine	23,586	12
St. Bernard	7,280	1
St. Charles	12,321	7
St. Helena	9,542	2
St. James	16,596	7
St. John the Baptist.....	14,766	8
St. Landry	71,481	35
St. Martin	26,394	8
St. Mary	31,458	21

Parish	Population	Number of physicians in active practice
St. Tammany	23,624	14
Tangipahoa	45,519	29
Tensas	15,940	7
Terrebonne	35,880	15
Union	20,943	10
Vermilion	37,750	16
Vernon	19,142	8
Washington	34,443	15
Webster	33,676	22
West Baton Rouge.....	11,263	4
West Carroll	19,252	9
West Feliciana	11,720	3
Winn	16,923	5
Total	2,363,880	1,957*

*Figures given here are based on the Louisiana State Board of Medical Examiners, "Official list of physicians, surgeons, midwives, chiroprodists, 1940."

PHYSICAL EXAMINATION OF THE DRAFTEE

There has just been completed a review of the registrants for the draft who were disqualified on account of some physical disability. Below are listed the number of rejections and the percentage each cause represents of the total number examined of each race. It is interesting to note that the rejections of the colored examinees are on the whole fewer than those of the white. Were it not for the high rate of syphilis and illiteracy, the rejection of the colored men would have been very much smaller than that of the white.

Reason for Rejection	—White—		—Colored—	
	Num- ber	Per cent	Num- ber	Per cent
Dental defects	531	12.42	171	6.69
Musculo-skeletal	495	17.17	171	6.69
Cardiovascular	180	6.24	93	3.64
Mental & nervous.....	114	3.95	49	1.92
Illiterate	101	3.50	928	36.31
Gonorrhea	10	.35	45	1.76
Syphilis	50	.73	345	13.50
Morally unfit	20	.60	13	.51
Eyes	175	6.07	54	2.11
Hernia	106	3.68	51	1.99
Ear, nose & throat....	109	3.78	20	.78
Lungs	44	1.53	20	.78
Miscellaneous	145	5.03	72	2.82
Total	2080		2032	

F. P. Rizzo, Major, M. C.,
Medical Division Selective Service.

DRAFT EXAMINATIONS

There has been a great deal of newspaper and periodical discussion relative to the unfortunate

situation in which men are placed who have passed the Draft Board physical examination and are rejected at the induction centers. Throughout the country as a whole an average of 12 per cent of the men passed by the Draft Board physicians have failed to meet the physical standard of the induction centers. Illustrative of the splendid care with which the Louisiana doctors are making the physical examinations is the statement that there has been only five per cent of rejections in the induction centers of Louisiana of those men passed by the Draft Board doctors. As the Times-Picayune says, "the obvious conclusion is that the state's Draft Board doctors have done an excellent job of determining and applying army specifications."

NEWS ITEMS

Dr. Leon J. Menville, president-elect of the Radiological Society of North American, was one of the guest speakers at the Midsummer Radiological Conference in the Rocky Mountains. At this Denver meeting, Dr. Menville was one of seven speakers; others included such men as Golden, Camp and Portman.

Dr. Lucien A. LeDoux, Councilor from Louisiana for the Southern Medical Association, attended a meeting of the Executive Committee of the Council in Birmingham on August 16.

The Southern Medical Association will meet in St. Louis this year on November 11-13.

The United States Civil Service Commission announces examinations for three types of medical positions—Junior Medical Officer, Medical Guard Attendant, and Medical Technical Assistant. Applications for Junior Medical Officer will be accepted until November 15, 1941, the others until further notice. The position of Junior Medical Officer pays \$2,000 a year and will be filled at St. Elizabeth's Hospital in Washington. There are two types of internship: rotating and psychiatric.

Assistant Surgeon John C. Grier has been relieved at New Orleans and ordered to proceed to the U. S. Public Health Service Hospital, Fort Worth, for duty.

Senior Surgeon Calvin C. Applewhite has been relieved at New Orleans and ordered to proceed to Kansas City to establish headquarters as Director of Public Health Service District No. 7.

Passed Assistant Surgeon Arthur B. Price has been relieved at the Louisiana State Health Department and ordered to report to District No. 4, New Orleans, for duty.

The Physicians Casualty Association of America has made a reduction in the \$25.00 per week accident and health insurance, of \$1.00 per year; in

the \$50.00 per week accident and health insurance, of \$2.00 per year and in the \$75.00 per week accident and health insurance, of \$3.00 per year.

The American Neisserian Medical Society announces an annual prize of one hundred dollars, to be known as the P. S. Pelouze Award, to be presented to the person under thirty-five years of age who, in the opinion of the Committee of Awards, has made the outstanding contribution to the control of the gonococcal infections during the preceding year.

Nominations for the award should be sent to the Secretary not later than March 31 of each year. The winner will be announced at the subsequent annual meeting of the Society.

In the intense concentration of the nation's resources on the needs of defense, the American Committee on Material Welfare believes there is danger that the long fight to preserve the lives of American mothers and babies may lose its momentum. In the last few years the maternal and infant death rates in the United States have been brought down to record low levels and the committee considers it essential to hold these gains.

ACADEMY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY

The forty-sixth annual meeting of the American Academy of Ophthalmology and Otolaryngology will be held at the Palmer House, Chicago, October 19-23, under the presidency of Dr. Frank R. Spencer, Boulder, Colo.

The academy's program consists of one general scientific meeting on the morning of the first day, separate programs for the two specialties on alternate afternoons and instructional courses every morning beginning on Tuesday.

The feature of this year's general opening meeting will be a symposium on vertigo, with Dr. Francis H. Adler, Philadelphia, representing ophthalmology; Dr. William J. McNally, Montreal, otolaryngology, and Dr. Bernard Alpers, Philadelphia, neurology.

INFECTIOUS DISEASES IN LOUISIANA

The morbidity report of the Section of Epidemiology of the Louisiana State Board of Health showed that for the week ending July 19 the following diseases were listed in numbers greater than ten: 160 cases of syphilis, 43 of whooping cough, 29 of pulmonary tuberculosis, 21 of cancer, 15 of gonorrhea, and 13 each of pneumonia and typhoid fever. The typhoid fever cases were spread through the state; Union with three was the only parish to have more than two patients discovered with this disease. Two cases of poliomyelitis were discovered, one in Acadia and one in Ouachita. It is interesting that there were listed nine cases of typhus fever, four of which originated in Caddo Parish. The following week, the thirtieth week of

the year which closed July 26, syphilis again was by far the most prevalent of the reported diseases, 162 cases being listed, followed by 22 of gonorrhea, 15 of pulmonary tuberculosis, and 14 of typhoid fever. This is really a remarkable record, the first time in many years that only four diseases were reported in the state in numbers greater than ten. Of the rare diseases, poliomyelitis was found, one case in Franklin and one in Orleans parishes. Of the seven cases of typhus fever, two came from East Baton Rouge and three from Iberia. For the week ending August 2, there were listed 222 cases of syphilis, 36 of gonorrhea, 24 of pneumonia, 22 of pulmonary tuberculosis, 19 of cancer and 17 of whooping cough. In this week three cases of poliomyelitis were found in Grant and one each in Claiborne and East Baton Rouge parishes. One case of anthrax was listed. For the week which ended August 9, the important reported diseases numerically were syphilis with 335 cases, gonorrhea with 27, pulmonary tuberculosis with 24, pneumonia with 16, whooping cough with 15, cancer with 14, and malaria with 10. This week a case of poliomyelitis was found in Orleans Parish and one in Tangipahoa. Typhus fever was found in Acadia, Caddo, Orleans and East Baton Rouge parishes, one case each.

HEALTH OF NEW ORLEANS

The Bureau of the Census, U. S. Department of Commerce, has reported that for the week ending July 12 there were listed 125 deaths in the City of New Orleans as contrasted with 146 the previous week; these deaths were divided 77 white and 48 negro, with 14 of them occurring in children under one year of age equally divided between the two races. The following week there was an increase of 15 deaths; of the 140 listed, 81 were white and 59 negro, with 20 infant deaths, seven white and 13 negro. For the week which closed on July 26 there were 149 deaths. This increase over the previous week was due to the fact that one more negro died and eight more white persons. The 14 infant deaths were divided nine white and five negro. There was a fairly sharp increase in the number of deaths for the week closing August 2, there being listed 160 deaths. This increase was dependent entirely on a greater white mortality than for some weeks. One hundred and one white deaths occurred and only 59 negro demises. Of the 11 babies who died, there were seven white and four negro.

NURSES AIDES

The U. S. Director of Civilian Defense, Mayor F. H. LaGuardia, announces the training of 100,000 Volunteer Nurses' Aides during the next twelve months, in collaboration with the American National Red Cross and the major hospitals of the country. The program is in preparation for a great expansion in hospital beds which may be required during the National Emergency, at a time

when the already overburdened nursing facilities of civilian hospitals are seriously depleted due to the demands of our military and naval establishments and the increasing needs of public health and industrial hygiene services.

The growing deficiency in hospital personnel is now being met in part through the training of large numbers of paid subsidiary hospital workers by the NYA, WPA and other agencies. The training program for Volunteer Nurses' Aides is designed to expand the effectiveness of the trained nurse in hospitals, clinics and field nursing services by supplying her with intelligent assistants who can work under her direction.

The curriculum of instruction has been prepared by the Medical Division of the Office of Civilian Defense, the American National Red Cross and the Federal Security Agency. Eligibility is limited to women between the ages of 18 and 50 who have had at least a high school education or its equivalent and who are physically fit. The course will provide 80 hours of intensive instruction in a period of seven weeks. The first half of the course will be given in the local Red Cross chapter house in collaboration with local hospitals and nursing organizations. This will constitute the probationary period and will require two hours of instruction daily on five days a week for four weeks.

The second half of the course will consist of supervised practice in a hospital which has been designated by the Office of Civilian Defense and the Red Cross as a Training Center. The American National Red Cross will assist the hospital to provide competent instructors and nursing supervisors.

Those who complete the course will be enrolled in the Volunteer Nurses' Aide Corps of the American Red Cross with the assurance that they will play an important role in Civilian Defense. They will retain their membership in the Corps only as long as they continue to render adequate service during the period of the National Emergency. This is defined as 150 hours of volunteer service in a hospital, clinic or field nursing organization in at least one 3-month period in each calendar year.

The Office of Civilian Defense and the American National Red Cross will provide for this continuing service by arrangement with local hospitals and field nursing agencies. For this purpose, the Red Cross will maintain a Placement Bureau, which will allocate Volunteer Nurses' Aides to the following types of nursing service: Hospitals and clinics, visiting nurse (home visiting) agencies, health departments, school health services and industrial hygiene clinics.

By serving in this manner as assistants to qualified nurses, their training will be continued. In the event of sudden emergencies during a period of national crisis, they will then be immediately available for reassignment to hospital or field duty by the Office of Civilian Defense. There will be opportunity for some to serve as members of the Mobile Medical Field Units which are being organized in hospitals along both seaboards and in industrial centers in the interior, according to plans announced this week by the U. S. Director of Civilian Defense.

Volunteer Nurses' Aides will wear the uniforms and insignia of Civilian Defense. The new insignia for Nurses' Aides will be a red cross within the triangle and circle of the OCD, indicating that the Aide was enrolled and trained by the Red Cross to serve in Civilian Defense.

Applicants may enroll at the Red Cross chapter house and the courses will begin in each locality as hospital arrangements are completed.

JOSEPH JAMES WYMER

(1879-1941)

Dr. J. J. Wymer died Saturday, August ninth, at his summer home in Waveland at the age of sixty-two. Dr. Wymer was active in the medical life of the City of New Orleans. For many years he had been Director of the Health Division of the New Orleans Public Service. He had been a member of the Louisiana State Medical Society for over twenty-five years.

BOOK REVIEWS

Manual of Fractures, Dislocations and Epiphyseal Separations: By Harry C. W. S. deBrun, M. D., F. A. C. S. Chicago, Year Book Publishers, 1939. Illus; pp. 468. Price \$3.00.

This 468 page manual with 150 illustrations is divided into four parts. Part 1 deals with the general consideration and the treatment of fractures in general. Part 2 covers specific fractures of various bones, including bones of the face and skull. Part 3 considers dislocations of all types. Part 4 is a presentation of special chapters on the

use of plaster, healing time, disability rating, physical therapy and roentgenography.

The author has intentionally written a small condensed volume and, as such, this is a good, brief review of the author's experience as well as of many of the standard methods of treatment. Naturally some of the more recent advances are not included, but on the whole the book should prove worth while to those desiring a good sound condensed volume on fractures and dislocations.

RUFUS H. ALLDREDGE, M. D.

Rheumatic Fever: Studies of the Epidemiology, Manifestations, Diagnosis and Treatment of the Disease during the First Three Decades: By May G. Wilson, M. D. New York, The Commonwealth Fund, 1940. Pp. 595. Price \$4.50.

Dr. Wilson's book is by far the most informative treatise on the subject of rheumatic fever that has been seen by the reviewer. Basically it is a compilation of data from years of experience. Dr. Wilson has had treating these cases in the various hospitals of New York City and her ability to follow these patients over such a long period of time, thereby enabling her to give first hand information on the progress of the disease from onset to death, dwelling on the various manifestations that occur and correlating her clinical findings with post-mortem examinations. There are numerous graphic illustrations which simplify the statistical data.

Although the subject matter is derived mainly from case experience, there is a thorough inclusion of the knowledge of other workers in this field with a splendid bibliography of recent literature.

The book is divided in sections as listed in subtitle, each being carefully treated with special emphasis on the more important phases of the subject with summaries where needed.

From beginning to end the book is always readable and can certainly be considered a valuable addition to the library of every pediatrician and internist.

OSCAR BLITZ, M. D.

The Mask of Sanity: By Hervey Cleckley, B. S., B. A. (Oxon.), M. D. St. Louis, C. V. Mosby Co., 1941. Pp. 298. Price \$3.00.

This most valuable and authoritative contribution to American psychiatric literature and thought comes of Dr. Cleckley's exhaustive study of and extensive clinical experience with a type of personality disorder which has met with much diversity and vagueness of opinion in regard to characteristics and classification.

The book has been written with the object of focusing the attention of the medical profession, psychiatrist and general physician alike, upon the recognition and care of the so-called psychopathic personality. The author not only adopts a restricted meaning for the term "psychopath" in distinction to the term commonly understood to cover nearly all mental aberration not included in the psychoses and neuroses, but to designate more properly the character of this, to him, quite distinctive type of disorder, he coins the term "semantic dementia", with its implications of affective disorganization, inability to comprehend emotional content or the ordinary meaning-aspect of life. This appears to be the outstanding and distinguishing characteristic of a class of mental variants whose intellect and rational responsiveness remain unimpaired, but whose emotional deficiency, lack of insight, and apparent urge toward

social and spiritual suicide unfit them for participation in the normal activities and evaluations of life and constitute a problem for the law courts and general public with whom they so often come in conflict.

Believing that a detailed record of the lives of the patients is essential to a fuller understanding of this paradoxical type of mental deviation, the writer presents in detail several cases whose display of common characteristics strikingly supports his theory of a pathologic entity distinct from the more or less heterogeneous group in which it has heretofore found classification. An hypothesis is offered to explain dynamic factors which might influence the development of the psychopathology underlying the abnormality, but very little hope is held out in regard to the efficacy of present-known therapeutic agencies.

What is most needed at present is an understanding of this type of personality as definitely disabled and in need of care in special institutions, instead of the continual shunting between jails and closed wards which has hitherto been the only effort made toward a solution of the problem. Dr. Cleckley, by his stimulating and sympathetic treatment of the subject, has done much toward bringing about a recognition of the prevalence and seriousness of the disorder and in promoting a clearer definition of the psychopath which may prove of utmost value in the resolution of present legal and medical uncertainties concerning his status.

C. P. MAY, M. D.

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A CONSIDERATION OF THE FASCIA OF BROAD LIGAMENT WITH RESPECT TO CERTAIN SURGICAL PROCEDURES ON THE PELVIS*

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In the past, many gynecologists have described successfully the ramifications of the pelvic fascia and depicted its relationship to various reconstructive operations on the pelvic organs. There are, however, certain features of the fascia of the broad ligaments and the cardinal ligaments which have not been stressed sufficiently or else have been overlooked. These features are related definitely to the question of total versus subtotal hysterectomy and to the surgical management of the prolapsed cervical stump. For purposes of accuracy and clarity, the anatomic characteristics of the structures of the broad and cardinal ligaments will be reviewed briefly.

ANATOMY

According to most anatomists, the broad ligaments pass from the sides of the uterus to the lateral walls of the pelvis. Together with the uterus, they form a septum across the female pelvis, dividing that cavity into two portions. The bladder is contained in the anterior portion; the rectum and, in certain conditions, certain coils of the small intestine and a part of the sigmoid colon are con-

tained in the posterior portion. Between the two layers of each broad ligament are contained; (1) the uterine tube superiorly, (2) the round ligament of the uterus, (3) the ovary and its ligament, (4) the epoophoron and paroophoron, (5) connective tissue, (6) unstriated muscular fibers and (7) blood vessels and nerves. In addition to the broad ligament just described, there is a band of firmer tissue just below, and continuous with, the fibrous tissue of the broad ligament, designated as the "cardinal" or "Mackenrodt's ligament." This ligament extends from the lateral bony pelvic wall and is attached to the side of the uterine cervix and to the vault and lateral fornix of the vagina.

I¹ stated five years ago that considerable emphasis had been given to the supporting power of the round ligaments, broad ligaments and uterosacral and uterovesical ligaments. I believe, however, that if the anatomic relationship of these various structures to the uterus and bladder were investigated it is doubtful whether they would be proved to offer any support to the uterus. Viewed from the abdominal aspect, the round ligaments always rest on the broad ligaments (fig. 1) and are freely movable. The upper portions of the broad ligaments are merely folds of peritoneum which can be moved freely from side to side, and forward and backward. The uterosacral and uterovesical ligaments are composed of folds of peritoneum and connective tissue and become fixed only when inflammation is present. Furthermore, after all of these ligaments have been divided surgically (fig. 2) in the course of abdom-

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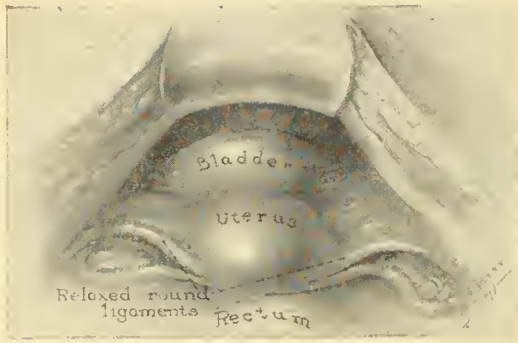


Fig. 1. Normal position of female pelvic organs.

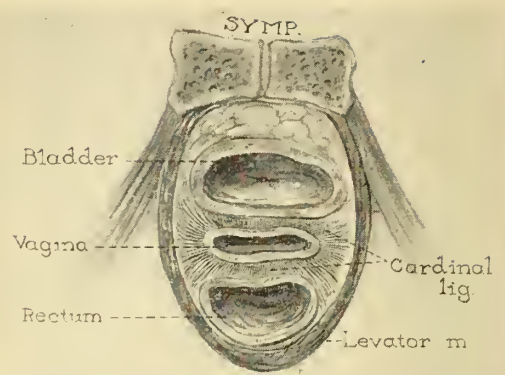


Fig. 3. Transverse section of pelvic fascia through bladder, vagina and rectum just in front of cervix.

inal hysterectomy, the uterus still does not prolapse, since it remains fixed in its normal position by the lateral masses of connective tissue of the parametrium, which, in turn, are attached to the sheaths of the vessels and the bony pelvis. It becomes apparent that the principal tissues which maintain the uterus in its normal position in the pelvis are these lateral masses of pelvic fascia and not the usually designated uterine ligaments.

A better understanding of the cellular pelvic fascia is derived from a study of a diagrammatic cross section just in front of the uterus, through the bladder, vagina and rectum (fig. 3) and a second coronal diagrammatic section directly through the uterus and vagina (fig. 4). The chief point of interest in figure 3 is that this pelvic fascia originates on the bony and muscular walls of the pelvis, and extends completely around the vagina and bladder. It continues also over the

uterus which does not appear in this drawing. The density of this fascia varies from birth to old age. It is thickest at the points of greatest stress, which are around the cervix and beneath the bladder. During pregnancy it becomes thicker, pliable and tremendously vascular. During and after the menopause it atrophies, becomes devoid of adipose tissue, and loses much of its supporting power. The coronal section in figure 4 reveals the dense character of the cardinal ligament, its origin at the pelvic wall and its insertion about the cervix and upper portion of the vagina. It is more or less continuous with the lower margin of the broad ligament. The plexus of vessels and the ureters penetrate this fascia, and are protected by it. For example, the most fixed portion of



Fig. 2. View with all ligaments divided to expose pelvic fascia.



Fig. 4. Coronal section of pelvic fascia through uterus and vagina.



Fig. 5. Sagittal section of lower portion of adult female trunk. Note position of uterus. Inset: Sagittal section through pelvis of newborn female child.

the entire ureter is the ureterovesical juncture and this is surrounded by a continuation of this pelvic fascia. The correct explanation should be that this point is the dangerous region in regard to stress during parturition and the point most vulnerable to infection.

There is considerable shift in the pelvic fascia and organs from birth to maturity (fig. 5). In the newborn child the uterus is contained in the abdominal cavity and projects beyond the superior aperture of the pelvis. The cervix is considerably larger than the body of the uterus. The pelvic fascia is thickened at the points of attachment where stress ultimately will be exerted around the cervix and the rectovesical and rectovaginal walls. At puberty (fig. 5) the uterus has become pyriform and normally weighs from 14 to 17 gm. It has descended into the pelvis, assumed an anteversion position and often appears to be supported by the bladder. This, however, is an erroneous conception. Nature never intended that one organ should support another, but a specific supporting structure is provided for each one. This structure is sometimes congenitally faulty and permits abnormal positions of the organs. This is true of the uterus in approximately 20 to 30 per cent of females. However, these same females

may have faulty long mesenteries of the stomach and kidneys which produce a state of ptosis. In such cases, it is no more necessary to correct surgically a movable uterus than it is necessary to perform nephropexy or gastropexy. Surgical procedures on the uterus are necessary only when fixation occurs from some inflammatory process; surgical procedures on the kidney are necessary only when it fails to empty properly or pyelocystitis, which is rare in a movable kidney, develops. The pelvic fascial attachment around the cervix, which maintains the uterus in its normal position, extends higher on the anterior wall than on the posterior. In addition, the fascia becomes thickened in the rectovaginal and rectovesical regions undoubtedly in order to protect the bladder and rectum during parturition.

FACTORS WHICH DETERMINE TYPE OF PROCEDURE

Since the supporting and protecting character of the pelvic fascia seems to be established beyond doubt, it should be the one factor which determines whether total or subtotal hysterectomy should be performed. Among nulliparas, there is approximately an 80 per cent possibility that the cervix will remain in its normal position if subtotal hysterectomy is performed, since its fascial attachments have not been disturbed. This may also be true of women who have had one or more children, but it is the exception rather than the rule. If subtotal hysterectomy is performed in cases in which the cardinal ligaments have been stretched or torn to such a degree that they cannot maintain the proper lateral tension on the cervix, it will begin to sag in the pelvis and, eventually, prolapse. A partially prolapsed stump and cystocele will produce troublesome symptoms. Many operations have been devised on the broad and round ligaments in order to support the cervix properly. The majority of these operations are time consuming and faulty from an anatomic viewpoint.

Total hysterectomy requires complete separation of partially torn cardinal liga-

ments from the cervix and a further division of the uterosacral and uterovesical portions of the pelvic fascia. After removal of the uterus and cervix, the lateral cardinal ligaments may be shortened to any desired tension and then reattached to the lateral angles of the vaginal vault, where they had been attached until they were torn off by trauma at parturition. The stumps of the broad ligaments, if pulled laterally, tend to elevate the vagina and to shorten further the cardinal ligaments by bringing them nearer their points of origin. If the vaginal vault is supported in this manner, it cannot possibly prolapse, since the parts have been restored to as near normal as possible.

Shortening the vagina has been considered a deterrent to total hysterectomy. If there is an adequate anterior and posterior vaginal fornix, the vagina actually may be lengthened rather than shortened by utilizing this extra vaginal mucosa by a process of evaginating the cervix by traction after dividing the uterovesical and uterosacral folds of the pelvic fascia.

Intra-abdominal hemorrhage has been noted as a cause of death subsequent to total hysterectomy and has been offered as a deterrent to the procedure. This complication is prevented by inverting the cut edges of the vagina so that if bleeding occurs, it will be into the vagina and not into the abdomen. Bleeding from the vaginal vault is controlled promptly by immediate application of a curved forceps on the bleeding point for forty-eight to seventy-two hours.

TECHNIC OF TOTAL HYSTERECTOMY

The vagina is cleansed thoroughly with soap, water and alcohol, and then is painted with tincture of merthiolate. The cervix may or may not be closed except in performance of the operation for carcinoma of the fundus. Tincture of merthiolate is used for painting the abdominal wall. When the patient is completely draped the Trendelenburg position is assumed. Complete, relaxing anesthesia is desired.

A low midline incision extending from

the symphysis pubis to the umbilicus is sufficient. A warm, moist, gauze pack is used to retain the intestines. The right round ligament is divided between forceps, thus opening the broad ligament. If the tube and ovary are to be removed, the ovarian ligament is divided near the bifurcation of the iliac vessels. If the adnexa are to be retained, the ligament is divided near the uterus and retracted. The anterior and posterior peritoneal coverings of the broad ligament then are divided further, thereby exposing the deeper fibrous portion of this ligament and the attachment of the cardinal ligament. These ligaments, including the uterine and cervical vessels, are divided between clamps close to the vagina and cervix after the bladder has been pushed forward carefully. This same process is repeated on the opposite side. While upward traction is maintained on the uterus, the uterosacral and uterovesical folds are divided; this procedure permits the vagina to be extended $1\frac{1}{2}$ to 1 inch (1.3 to 2.5 cm.) (fig. 6). The vagina is opened posteriorly and completely cut away from the cervix. The edges of the vagina are held by four tenacula. A running mattress suture of no. 1 chromic catgut closes the vagina by inverting the cut edges (fig. 7,



Fig. 6. Division of uterovesical fascia and lengthening of vagina.

upper left). A second suture is placed over this one. The uterine vessels included in the cardinal ligament and lower portion of the broad ligament are now tied by a double stick tie of no. 1 chromic catgut. The vaginal wall is picked up in this suture well away from the ureter, and as the suture is tied, the cardinal ligament can be pulled mesially, thereby shortening it as it is tied (fig. 7, upper right). The same procedure is carried out on the left side. The round ligaments next are adjusted to the vaginal vault on each side (fig. 7, lower left), with only sufficient tension to pull the cardinal ligaments slightly laterally for a temporary period. As the tissue heals, the ligaments are shortened further and thus ade-

quate tension on the vault is maintained. Peritonealization (fig. 7, lower right), is completed by inverting the ovarian stump on the right and left sides. When the adnexa have been retained, the ovarian ligament and all its vessels are retracted upward close to the bifurcation of the common iliac vessels. There the ovarian stump is inverted, which permits the ovary to hang freely without any tension. Any undue tension will produce thrombosis of the vessels in the mesentery and subsequently atrophy or cystic disease of the ovary.

PROLAPSED CERVICAL STUMP

From the preceding paragraphs, it is apparent that if subtotal hysterectomy

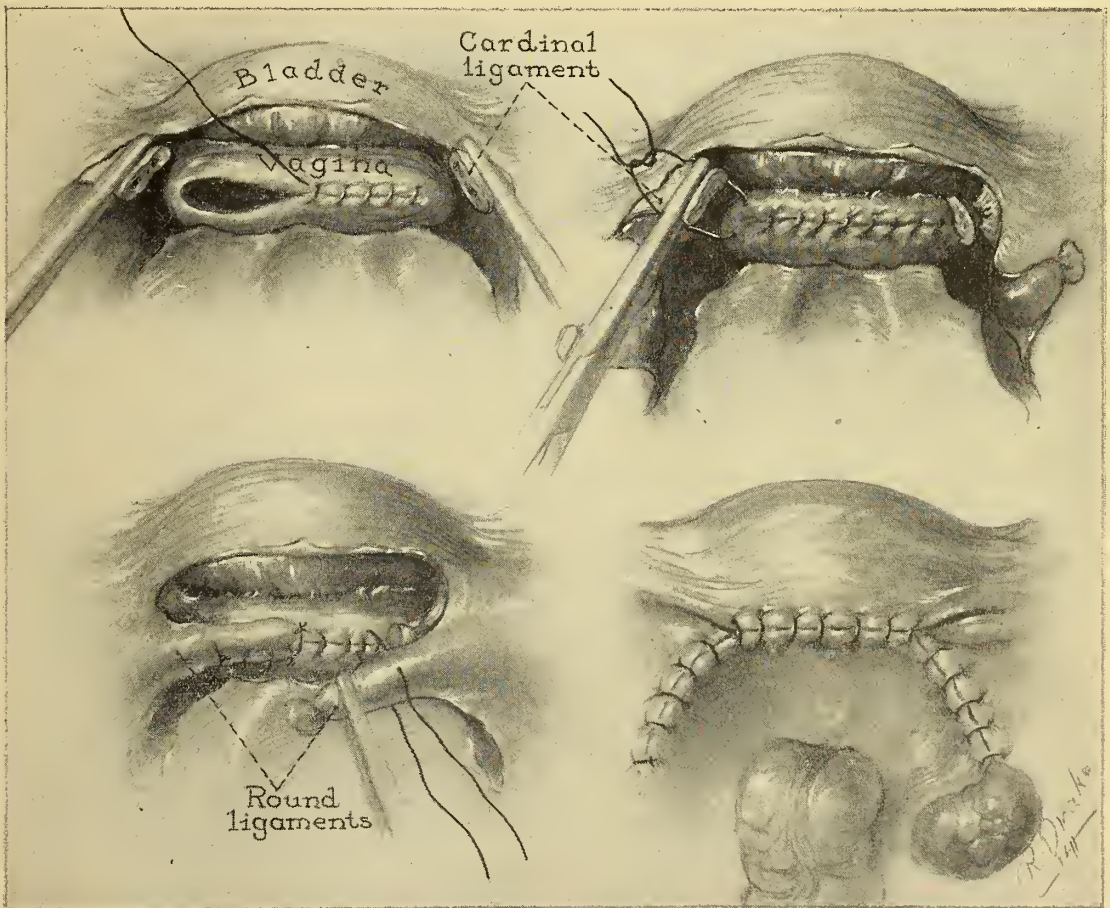


Fig. 7. Upper left, inversion of cut edge of vagina; upper right, ligation of cardinal ligament and reattachment to angle of vaginal vault; lower left, attachment of round ligament to vaginal

vault mesial to stump of cardinal ligament; lower right, peritonealization of pelvis. Note width of vaginal vault and angles of support.

has been performed when there is inadequate support from the cardinal ligaments and lower segment of the broad ligament, moderate to complete prolapse of the stump of the cervix is a most likely possibility. A discussion of the management of this situation seems pertinent, as any form of plastic reconstruction centers about the availability and proper use of the remnants of the pelvic fascia.

Patients in whom surgical treatment of the prolapsed cervical stump is necessary may be divided into two groups, namely; (1) those in whom it is desirable to maintain the vagina and (2) those in whom it is not. In the first group it is often most difficult to obtain satisfactory results, but the vagina can be maintained if any remnants of the cardinal ligaments are available. The round ligaments may be retrieved and brought forward beneath the bladder to serve as a partial support for the bladder by attachment to the uteropubic fascia. As a rule, after the cervical stump is mobilized (fig. 8, left) there is sufficient tissue of the car-

dinal ligaments although greatly attenuated, to permit approximation in the midline of the vaginal tract following excision of the cervix. These opposed ligaments then are adjusted beneath the bladder by attachment to the fascia of the pubic rami on each side, leaving only sufficient room for the urethra. The peritoneum under the bladder is sutured to these ligaments. The bladder and urethra are well retained and it should be noted carefully that it is almost impossible to bring these ligaments tight enough under the urethra to obstruct the urethra. If the opposed ligaments are sutured in this fashion herniation of the bladder over these ligaments will not occur.

The next step in this procedure is to pick up the divided ends of the uterosacral ligaments and gently strip them from the rectum and adipose tissue sufficiently far back to permit accurate approximation in the midline (fig. 8, right). These are, in turn, sutured to the vaginal vault. These ligaments then tend to exert a constant backward pull on the vault. The

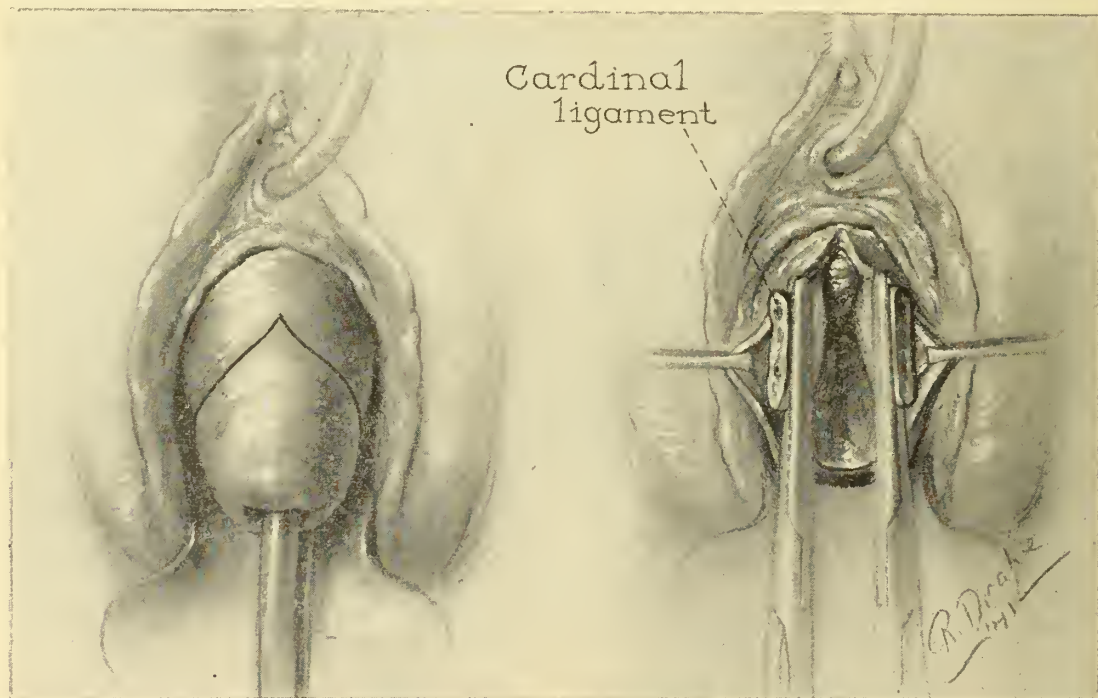


Fig. 8. Left, cervix extended; racquet incision; right, approximation of remnants of cardinal and broad ligaments.

mucous membrane of the anterior vaginal wall is now adjusted to these approximated ligaments, thus completing correction of the cystocele and fixing of the vaginal vault.

The reconstruction of the posterior vaginal wall in cases of colpocele, rectocele and relaxed perineum may be more difficult, but with patience and care it can be done. The procedure is best undertaken by splitting the vaginal wall posteriorly from the perineum to the vault and exposing the rectal wall and adipose tissue. To correct the colpocele effectively, it must be recalled that the pelvic fascia originally extended over the rectum beneath the vaginal wall and was fixed at the juncture of the uterosacral ligaments to the uterus. This fascia, which is now lateral to the rectum, must be grasped, brought together again over the rectum, and sutured to the approximated uterosacral ligaments. This suturing is continued over the rectum until the edges of the levator ani muscles are encountered. The perineum can now be reconstructed in the usual manner. The posterior vaginal wall usually is closed with a continuous lock stitch. The complete procedure is essentially the same as a Mayo vaginal hysterectomy with only slight modifications.

In the second group of cases, I favor vaginectomy with removal of the cervical stump. This is easily and quickly performed with little risk. The vaginal mucosa is separated from the bladder, the scar of the vault and the rectal wall. The remnants of the fascia constituting the triangular ligament and constrictor urethrae muscle are approximated beneath the urethra and neck of the bladder. The levator ani muscle is mobilized and the lateral edges are sutured together in the midline as high as the posterior margin of the triangular ligament, thus obliterating the vaginal tract. The bulbocavernosus muscle, or constrictor of the vagina, is superimposed over the levator ani muscles in order to cover the lower half of the outlet. Colles' fascia and skin are closed in the midline.

SUMMARY

The frequent faulty development of the pelvic fascia may be associated with other congenital defects. The importance of the pelvic fascia is stressed with particular reference to total hysterectomy and to surgical correction of prolapsed cervical stump associated with cystocele and rectocele subsequent to subtotal abdominal hysterectomy. When it is desirable to maintain the vagina the latter procedure is similar to a Mayo vaginal hysterectomy, with certain modifications. Vaginectomy is the operation of choice when it is desirable to occlude the vagina.

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DISCUSSION

Dr. O. C. Rigby (Shreveport): I feel that I am voicing the sentiment of the Louisiana State Medical Society, when I say that we have learned a great lesson in gynecologic surgery from the paper given by Dr. Counsellor today. I heartily agree with him, that the stress which was once placed upon the round ligaments and broad ligaments was entirely overrated, by leading so many to believe that these ligaments had all to do in supporting the pelvic organs. How often have we seen, years later, some operation done, such as a subtotal hysterectomy with the round ligaments pulled across the stump and the ovaries pulled up to midline, later to be prolapsed, all because the uterosacral ligaments and cardinal ligaments had not been shortened and made to bear their part in holding up the pelvic floor. As has been shown, tightening the cardinal ligaments with the fascia from the uterosacral ligaments and the broad ligaments is a tremendous help toward maintaining the pelvic floor. Since it would seem better to leave the cervical stump, in order that it may help maintain the pelvic floor, I would like to call your attention to the fact that too many of these women develop cancer in the future. We have quite a few at the tumor clinic at the Charity Hospital now, where the subtotal hysterectomy was done and they now have cancer of the cervical stump. However, if a surgeon would do a complete hysterectomy, paying attention to the cardinal ligaments and the uterosacral ligaments, there is no reason why there should be a prolapse in the future; that is, taking for granted that there had been no laceration of the pelvic floor from childbirth prior to operation.

Dr. P. J. Carter (New Orleans): I would like to ask one question. I noticed that Dr. Counsellor tied the cardinal ligament and uterine artery en masse. Do you think it is always better to tie en masse or separately?

Dr. P. B. Salatich (New Orleans): There is a point I think of importance which I am glad Dr.

Counseller stressed. That is to asepticize thoroughly the vagina before performing hysterectomy. I think some physicians are lax in that.

I believe probably the reason a good many do not like to do a complete hysterectomy is because the mortality is higher. I do not think the mortality is any higher in complete than in subtotal. I feel this way—if you have to remove a uterus, generally that uterus is diseased. If the body of the uterus is diseased, that cervix is kind in not also becoming diseased. Ninety-five per cent of mine are total because I feel that you may have an apparently non-diseased cervix but if you do a subtotal you can not tell how much trouble is in the cervical glands. Sometimes these patients will have continuous discharge and for that reason a few years ago conization was brought out to prevent that because that was a disturbing factor after hysterectomy. I will admit it is a little harder to do a total, especially in the beginning of a doctor's gynecologic career, than to do a subtotal; however, after doing a few totals I am sure he will find that the bleeding is not any greater and the operation is not much harder and that he has the assurance that he will have no after malignancy in the cervix.

Dr. John F. Dicks (New Orleans): I have enjoyed Dr. Counseller's paper very much and think his moving pictures are splendid. One criticism that I might make of his picture of complete hysterectomy is that he has made the operation look very simple. I would like to add a word of caution to those who have not had much experience that the procedure of complete hysterectomy is far from easy and carries a higher mortality and morbidity than supravaginal amputation. In well trained hands, however, it should be done more often. The general trend is towards complete hysterectomy as Dr. Counseller has so beautifully brought out in his paper.

Dr. Virgil S. Counseller (In closing): In answering Dr. Carter's question regarding whether or not the uterine artery is ligated en masse with the cardinal ligament, I should like to say that in almost all instances only one tie is placed on the cardinal ligament, including the uterine artery. Occasionally, if this mass of tissue is large a second tie will be placed on it. As a rule, when this ligament is exposed, the uterus is kept under tension. The uterine artery is situated on top of the ligament, so that in this position it is more effectively ligated than would be possible if the artery came through the mass itself.

The question of bleeding from the divided uterosacral ligament is important, in view of the fact that the motion picture did not show a clamp on this ligament. Bleeding usually is controlled by maintaining the uterus under tension, and when the uterus has been completely removed from the vaginal wall, four clamps are placed on the vaginal mucosa: one on each lateral angle, one anteriorly

and one posteriorly. Traction is maintained on these ligaments, and this usually effectually controls bleeding from the uterosacral ligament. If the cut edge of the vaginal wall is inverted, bleeding from the ligament is controlled by the suture.

In conclusion, I feel that, as has been brought out in the discussion, it is important that surgeons who are just starting their surgical careers be thoroughly advised concerning all types of pelvic surgical procedures, particularly in regard to total hysterectomy. It should not be inferred that total hysterectomy is a procedure easy to perform, since many difficulties might accrue to the inexperienced surgeon who attempts the operation incautiously. However, once the technic has been developed, it is as easy to do total hysterectomy, when the operation is definitely indicated, as it is to perform subtotal hysterectomy.

ACUTE SUPPURATIONS OF THE MOUTH, PHARYNX AND NECK*

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There are perhaps three so-called essential suppurative processes occurring in the mouth and pharynx. Each is a clinical entity arising as the result of infection, plus certain anatomic configurations which favor the collection and localization of an acute purulent process.

The first is the peritonsillar abscess or common quinsy. It usually follows an acute follicular tonsillitis, of which condition it is a frequent complication and is derived from an infection which migrates to the bottom of a tonsillar crypt, penetrates the capsule and comes to lie in the potential space between the tonsil and the aponeurosis of the superior constrictor muscle of the pharynx. The infection most frequently becomes active back of the middle third of the tonsil and for anatomic reasons already described, ascends along the line of least resistance into the areolar tissue of the soft palate.

Occasionally a peritonsillar abscess will rupture through the substance of the tonsil but rarely will it extend downward in the direction of the tonsillar base because of the

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firm attachment of the pharyngeal aponeurosis to this portion of the tonsillar capsule. The first sign of quinsy is a swelling and dusky congestion of the anterior pillar. In a day or two the uvula is deviated towards the healthy side and when the process has reached its mature stage (about five days following onset and longer perhaps in old cases where dense fibrous connective tissue adhesions are present), the purulent collection is found above the upper pole of the tonsil among the glandular elements and areolar tissues of the soft palate.

In a very few instances we have watched a quinsy run its entire course while occupying a retrotonsillar position; that is, a localized collection of pus back of the tonsil which showed no tendency to migrate upward to the supratonsillar fossa. Such a condition often offers a perplexing problem for diagnosis and resists most skillful attempts at surgical drainage. One must not fail to search the retrotonsillar tissues diligently by blunt dissection when dealing with a suspected lesion of this character.

RETROPHARYNGEAL ABSCESS

The second essential suppurative process occurring in the throat is the retropharyngeal abscess. It represents the end stage of a glandular suppuration and is found in a pocket of areolar tissue back of the superior constrictor muscle of the pharynx. Within this region, the so-called post-pharyngeal space, there are four chains of glands, two on either side in front of the bodies of the second and third cervical vertebrae, the largest chain being situated directly back of the posterior pillar of the fauces. A careful dissection of this region in infancy and early childhood will reveal ten to twelve lymphatic glands in this space. Therefore when atrophy of these glands has taken place, there is little likelihood of the development of a retropharyngeal abscess. It is a disease of childhood, most cases appearing before the age of six and rarely seen in adult life.

The symptoms depend upon the location of the abscess. It is to be remembered that the glands are found to one side of the median line of the pharynx; consequently

the pocket of pus will be located in corresponding positions. If the abscess develops superiorly in the posterior pharyngeal wall partly back of the soft palate the patient will present difficulty in swallowing and give a nasal intonation to the voice. If the abscess occupies a lower position there will be evidence of dysphagia and some degree of respiratory embarrassment. It must be remembered that the larynx of the child is situated about one vertebrae higher than that of the adult so that masses and swellings in the pharynx of children tend early to encroach upon the lumen of the larynx and produce the signs of respiratory obstruction.

The posture of the child is occasionally pathognomonic of retropharyngeal abscess. There is a tendency for the patient to tilt the head towards the healthy side and hold it in that position with some degree of rigidity. Many times the diagnosis is made by the characteristic posture of the head when the patient enters the doctor's office.

The diagnosis of post-pharyngeal abscess frequently offers some difficulties for the general practitioner. The true identity of the disease is not revealed until the process in the throat has become large enough to cause respiratory obstruction. The child refuses food, violent general reactive symptoms are in evidence and occasionally one hears an irritative cough not unlike that of croup.

We cannot pass by without simple mention of the value of radiographic examinations of the neck in patients suspected of harboring a retropharyngeal abscess. A soft tissue detail of the cervical region will clearly define many constant landmarks and likewise demonstrate a widening of the shadow in front of the bodies of the spine if a purulent collection is present in this region. Much information of great value can be obtained from lateral radiographs of the cervical region and particularly is this true when we are dealing with a process of the proportions of an abscess in the space between the air and food passages and the bodies of the cervical spine.

LUDWIG'S ANGINA

The third essential suppurative process is one which, although rarely seen, carries a high mortality and represents an infection capable of producing grave complications. It is Ludwig's angina, a phlegmonous process, occurring in a definite anatomic space in the sublingual region either above or below the geniohyoid muscle. This space, into which lymphatics from the floor of the mouth drain, is bounded laterally by the mandibles, above by the muscles of the tongue and the mucous membrane of the mouth and below by the mylohyoid muscle. Because the infection of Ludwig's angina is confined within these boundaries it frequently sets up alarming symptoms and eventuates in complications of a grave nature. Some writers on the subject state that the mortality is about fifty per cent.

In studying a frontal section of the head cut through the sublingual region one will observe clearly that the abscess may occupy one of four possible positions. It may be found in the potential space between the muscles of the base of the tongue and the geniohyoid muscle, it may be observed to lie at a lower level between the geniohyoid and mylohyoid muscles or it may occupy corresponding positions on the opposite side of the median line. It is exceedingly important to bear these facts in mind when instituting drainage of a Ludwig's abscess. It is doubted that the disease is, as often designated, a phlegmonous process without the formation of pus. A purulent collection is probably present in every instance and failure to find it at the time of drainage is due to the surgeon's unfamiliarity with the four possible positions above described and his neglect to search these regions on both sides of the midline.

The signs and symptoms are well known to all of us. The tongue is broad, red and swollen; it is relatively immobile and elevated against the hard palate. There are congestion and edema of the mucous membrane covering the floor of the mouth and one may find the imprints of the lower incisor teeth in the edematous tissues adjacent to them. Externally there is more or

less inflammatory swelling below the symphysis of the jaw although fluctuation on palpation is seldom noted. The external mass may be excruciatingly tender on pressure and display the classical signs of inflammation, although one rarely gets the feel of pus in this region. The speech is guttural, saliva drools from the mouth, swallowing becomes difficult and later encroachment of the disease upon the tissues at the base of the tongue gives rise to respiratory embarrassment.

When the infection has broken down its barriers and migrated to the soft tissues of the neck, an extensive phlegmon may circumscribe the entire cervical region. Hippocrates described such a condition under the term *cynanche* which literally signifies "dog choking." His was an advanced case in which a diffuse suppurative process enveloped the neck in a dog-collar fashion.

Associated with the above signs and symptoms are fever, chills and general indications of profound sepsis. In its aggravated form and when a septicemia supervenes the symptoms of Ludwig's angina are those produced by its complications.

The treatment is surgical and drainage may be accomplished in two ways. If the abscess is situated beneath the geniohyoid muscle as expressed by a large external swelling under the chin with only minor changes in the mouth and tongue, it may be drained by an external incision and blunt probing for the purulent collection. When found, a drainage tube is introduced into the cavity and the latter irrigated with Dakin's solution. If, however, the inflammatory reaction in the mouth and tongue preponderate, the abscess may be adequately drained by an incision under the tongue through the floor of the mouth to one side or the other of the median line. Again we emphasize the great importance of early diagnosis, early drainage and unfailing recognition of the four possible locations of pus in the anatomic spaces beneath the tongue.

SUPPURATIVE DISEASE OF PAROTID GLAND

When these essential suppurative processes break down their barriers and mi-

grate to other parts of the cervical region what course do they usually pursue? Where do these infections go when they leave their original pocket and invade the tissues of the neck? In nearly every instance they extend into the lateral pharyngeal or pharyngo-maxillary fossa, a space which is limited above by the base of the skull, continues down the neck as the carotid sheath and opens below into the posterior mediastinum. When studied in cross section at the level of the angle of the jaw where it is most clearly identified, this fossa is bounded anteriorly by the superior constrictor muscle of the pharynx, laterally by the ramus of the jaw covered by the internal pterygoid muscle, and the inner prolongation of the parotid gland and posteriorly by the muscles which cover the bodies of the cervical spine.

The lateral pharyngeal fossa contains areolar tissue, a dense plexus of lymphatics and the contents of the carotid sheath. It is exposed to infection on all sides; from the pharynx in peritonsillar and retropharyngeal abscess formation; from the bodies of the vertebrae in tuberculous or non-specific infections of these structures and from the parotid gland whose inner prolongation dips mesially under the angle of the jaw and becomes closely associated with the pharyngo-maxillary space. Because of this anatomic relationship we frequently follow the course of a primary suppurative process in the throat through the lateral pharyngeal fossa and thence into the parotid gland. By the same token the abscess may extend in the opposite direction from its original focus in the parotid gland to some point within the region of the pharynx. Such a sequence occurs frequently enough to be regarded a clinical entity.

The treatment of suppurative disease of the parotid calls for massive drainage of the gland. This is best obtained through an incision which starts above near the zygoma immediately in front of the ear and extends downward parallel with the ramus of the jaw to a point beneath and well in front of the angle of the jaw. The skin and subcutaneous tissue are then reflected forward,

permitting a wide exposure of the entire gland. It will be noted that the parotid gland lies immediately beneath the skin and subcutaneous tissue and that the fibers of the facial nerve pass through its structure at a rather deep level. Incisions may be made to a considerable depth within the substance of the gland without danger of doing injury to the seventh cranial nerve. It is to be remembered that the parotid gland is composed of compartments or acini and that a stab incision into one of these structures does not constitute adequate drainage of a suppurative gland. When such a technic is employed it may be necessary to make many stab wounds on successive hours or days before signs of resolution become apparent. Much time is saved and pain avoided by the establishment of massive drainage through an incision, which exposes the entire gland in the manner above described.

SUPPURATIVE PROCESSES IN THE CERVICAL REGION

Deep suppurative processes in the neck may attack and do great injury to the contents of the carotid sheath. Particularly is this true of the internal jugular vein which may become the seat of a phlebitis or a thrombophlebitis. If, during the course of a deep seated inflammatory process in the neck beneath the sternocleidomastoid muscle, the patient exhibits chills and fever and demonstrates signs of sepsis, the presence of a phlebitis or thrombophlebitis should be suspected and the vein exposed, ligated and resected. Blood cultures will be positive in the majority of such cases, although the operation should not be delayed until positive cultures are obtained. Immediate surgical interference of the character described offers a life saving measure to those in whom a cervical phlegmon has invaded the internal jugular vein.

It must be remembered too that the large vessels of the neck may be eroded by a suppurative disease and give rise to fatal hemorrhage. Interesting enough, such a grave accident is usually preceded by the show of small quantities of blood before the lethal gush occurs. The child with a peritonsillar

or retropharyngeal abscess experiences some bleeding of minor significance from the throat; several hours later another hemorrhage of larger proportions occurs; the next day, perhaps, further bleeding of an alarming nature and finally a terrific flow of blood from the pharynx which brings the patient's life to an end. Thus is observed the usual course of an infective process which erodes a large vessel in the neck. Several hemorrhages of increasing proportions presage the fatal loss of blood and the recognition of this entity warns the surgeon of impending danger and emphasizes the need of immediate surgical interference. Here again the anticipation of such an accident calls for another life saving measure, namely the ligation of the common carotid artery.

The course of an acute suppurative process in the cervical region may cover a wide range of clinical manifestations and give rise to pathologic changes of a bizarre character. The capricious behavior and often bewildering influences of inflammatory disease in this part of the body have given rise to diligent research and clinical experimentation in this field. In this particular study laryngologists have advanced with striking rapidity. The great importance of early recognition of the many morbid changes produced by inflammations in the neck, and the value of well directed surgical efforts in reducing the mortality to something less than an inevitable slow and painful death, has been learned. To the sum and total of this knowledge, has been added a clearer understanding of the mode of spread of infections to the mediastinum and rational methods for the treatment of an acute suppurative process within this part of the thoracic cage.

ACUTE MEDIASTINAL INFECTIONS

In this connection, reference is made to acute mediastinal infections arising from an inflammatory process within the tissues of the mouth, pharynx and cervical region. For an understanding of the etiologic factors which favor the development of such a process, a study of the pathways along which infection may travel through the

deep cervical tissues is imperative. To this end an attempt has been made to observe the complex arrangement of the cervical fascia in a study of serial sagittal transverse sections of the neck and thorax, to which embryologic observations have been added in support of some of the opinions herein expressed. In order to gain a better perspective of these anatomic relations, gross dissections of the cervical region and thorax were made. These comprised a careful reflection of the planes of the body, commencing with skin and subcutaneous tissue, and following in orderly sequence from without inward, layer by layer, until the dorsal and cervical vertebrae were exposed.

Thus, as one would read and turn the leaves of a book, from the first to the last page, the true story of an anatomic dissection is revealed and the relative importance of its component parts determined through a careful and orderly study of the adjacent structure of the body. In this, one may obtain, as by no other means, an explanation for the clinical behavior of many of the deep seated suppurations of the neck and mediastinum.

DESCRIPTION OF FASCIAE

In a general way the cervical fascia may be classified into two main groups of layers, each of which gives off innumerable connective tissue processes which unite to form a structural support for the tissues within the neck. The first of these groups is a system of fascial planes which, starting above at the summit of the neck, descends with the cervical muscles to become attached to the upper edge of the thoracic cage. This group embraces the fascia of muscle, and from without inward includes the superficial layer of deep cervical fascia, the fascia enveloping the omohyoid and sternohyoid muscles, and at a deeper level the fascia which follows the plane of the sternothyroid and thyrohyoid muscles.

This system of fascial layers forms spaces within the neck variously described as the anterior or previsceral compartments. They do not communicate directly with any part of the mediastinum. Although they may appear to lie in relation to the

retrosternal space, the attachment of their fascial walls to the upper margins of the thoracic cage forms their inferior limit and clearly separates them from any part of the thoracic cavity. The study of sagittal sections of a three-month human embryo is convincing proof of this fact. Here one observes that the innermost muscle layer of the neck is attached to the posterior surface of the sternum, forming the inferior boundary of the previsceral spaces within the muscles of the cervical region. It may be further demonstrated that iodized poppy seed oil, 40 per cent, injected into this region, fills the various spaces but finds a definite barrier below to its escape into the mediastinal cavity.

It would seem, then, that retrosternal infections are not to be considered in suppurative processes of the neck. This region, commonly referred to as the anterior mediastinum, is a small space which is separated from the cervical tissues by the thymic capsule. It is rarely affected by inflammatory processes, except those which extend from an osteomyelitis of the sternum or occur as the result of penetrating wounds of the anterior wall of the chest. This fact is perhaps worthy of note when drainage of the mediastinum is to be considered.

The second group of cervical fasciae is of greater interest in this study, because it forms definite pathways along which infections may travel from the neck to the mediastinum. For practical purposes, we may divide this group into two main systems, each contributing to the formation of clearly defined fascial planes along which infection is prone to spread.

The vasculovisceral system of fascia, as the name implies, envelops the viscera of the neck and mediastinum, and likewise surrounds the carotid sheath, the aorta (its arch and descending portion) and its many branches. It forms a cylindric covering of the pharynx, larynx, trachea, thyroid gland, aorta and its branches which ascend into the neck. Within the thoracic cavity this fascial coat blends anteriorly with the pericardial sac, and behind surrounds the aorta and extends laterally with the intercostal

arteries, to become thin where it merges with the parietal pleura. At the level of the dome of the pleura this fascial layer is greatly strengthened to enclose the subclavian artery and form the main suspensory ligament of the pleural dome.

For a clearer understanding of this fascial system, let us trace its component parts from without inward in a sagittal section of a fresh subject. Beginning at the lower border of the thyroid gland, one observes a distinct layer of fascia descending in the neck to become attached to the posterior surface of the sternum. It may be traced laterally as far as the external surface of the parietal pleura, where it forms the sheath of the internal mammary artery. Immediately beneath this fascial plane are uncovered the lymphatic drainage of the thyroid gland, the remains of the thymus and the inferior thyroid vein. Posterior to the thymus is observed another layer of fascia which encloses the innominate veins and the superior vena cava, and extends from the pretracheal fascia above to the mediastinal pleura below. Between this fascia of the superior vena cava system and the layer previously described, which extends from the lower edge of the thyroid gland downward and forward to the posterior surface of the manubrium, lies the thymic capsule or thymic space containing the inferior thyroid veins and the lymphatics of the thyroid gland.

As the dissection is carried deeper in the neck, the pretracheal fascia is next in order. Enclosing the larynx, trachea and thyroid gland, it descends into the mediastinum, surrounding the tracheobronchial lymphatic system, the arch of the aorta and the right branch of the pulmonary artery, to blend finally with the pericardial sac at the angle of reflexion of the parietal and visceral pericardium. Laterally in the neck the pretracheal fascia merges with the sheath of the common carotid artery. It continues posteriorly to form the retropharyngeal or buccopharyngeal fascia of the pharynx and the retro-esophageal fascia of the esophagus, and where the left side of the trachea is crossed by the arch of the aorta, it con-

tinues downward to enclose the descending aorta. Thus, there is formed within this fascial investiture the middle or visceral compartment of the neck. There is a wealth of experimental evidence to prove that this space communicates directly with that part of the mediastinum which lies between the arch of the aorta in front of the trachea, posteriorly. This region has been termed the anterior mediastinum, because it is the extreme anterior space which lies in direct communication with the fascial planes of the neck. The potential space immediately beneath the sternum, and in front of the pericardium, usually referred to in anatomic texts as the anterior mediastinum, is, in my opinion, more correctly termed the retrosternal space. As previously demonstrated, this space does not communicate with the soft tissues of the neck and plays no part in the descent of suppurative processes below the lower boundaries of the cervical region.

The second division of the vasculovisceral fascia, the prevertebral system, lies in front of the bodies of the cervical and dorsal vertebrae from the basilar process of the occipital bone down to the lumbar region, where it blends with the external perimysium of the psoas muscle and the crura of the diaphragm. In the cervical region this fascia encloses the prevertebral muscles, and on each side of the median line it is reinforced by the perimysium of these muscles. In the region of the posterior mediastinum, below the level of the third or fourth dorsal vertebrae, the prevertebral fascia loses this reinforcement and becomes exceedingly thin.

The prevertebral fascia forms the posterior wall of the retrovisceral space, or posterior compartment of the neck. This space, which is perhaps the most important pathway between the upper cervical region and the mediastinum, is limited in front by the buccopharyngeal fascia, which is continued downward as the retro-esophageal fascia, and deep in the chest forms the interpleural ligament and the sheath of the descending aorta. By the injection of iodized oil the retrovisceral compartment

can be visualized from the retropharyngeal region above to the posterior mediastinum below. Moreover, it can be demonstrated that the iodized oil does not spread to adjacent parts of the neck, but remains strictly confined to the boundaries of the retrovisceral space throughout its entire descent to the thoracic cavity.

The clinical significance of this pathway is obvious. Its intimate relation to the vertebrae, esophagus and lymph nodes within its upper extremity exposes it to infections from all sides. The occurrence of mediastinal suppuration, secondary to retropharyngeal abscess, has been common enough to command respect for the practical anatomic considerations of this important communication between the tissues of the cervical region and the posterior mediastinal space.

SURGICAL TREATMENT OF SUPPURATION OF MEDIASTINUM

In a previous publication I have discussed more precisely the surgical treatment of acute suppurations of the mediastinum. Some of the phases of this study are now reiterated in order that a few links may properly be added to the chain of events which have transpired since the time of the first surgical efforts in this field.

Thoracic surgeons are more or less unanimous in the opinion that suppurations below the fourth dorsal vertebrae call for posterior drainage. Such processes, which are found low in the mediastinum, may arise from disease of the esophagus, caries of the thoracic vertebrae or extension from the abdominal cavity. Preferably these may be approached and adequately drained by dorsal mediastinotomy, in which the thoracic cavity is opened posteriorly by a resection of ribs or by the removal of one or more transverse processes with a portion of the attached rib.

Cervical mediastinotomy is a far more conservative measure, and one which often serves admirably to drain infections in the upper portion of the mediastinum. When pus enters the mediastinum from the neck, this procedure would seem the one of choice. To drain an abscess through the tis-

sues which it has invaded is, we believe, a surgical axiom which in no other region of the body can be more advantageously applied.

Cervical mediastinotomy, moreover, has been successfully employed in traumatic perforations of the upper part of the esophagus. Through this technic, foreign bodies which have perforated the walls of the esophagus have been recovered. Esophageal perforations are sealed with packing to avoid a fatal mediastinal emphysema, and drainage of subsequent mediastinal infection is adequately established. This is a heroic measure, to be sure, but one which definitely possesses life saving possibilities for the unfortunate victims of this grave accident.

TECHNIC OF CERVICAL MEDIASTINOTOMY

The technic of cervical mediastinotomy is simple enough. One point of interest, however, is the selection of a site for the primary incision. This may be of little importance, although it occurs to me that the right side of the mediastinum is, for anatomic reasons, the logical approach. The three large vessels—innominate, left common carotid and left subclavian arteries—esophagus, trachea and descending aorta divide the posterior mediastinum into a right and left compartment. The right compartment is the larger; it contains many more lymphatic glands and is therefore the site of predilection for inflammatory processes in this region. A right-sided exposure of the posterior mediastinum is obviously the procedure of choice when there is reason to believe that infection has extended through the neck by the lymphatic route. Of considerable importance, also, is the fact that the esophagus on the left lies in close relation to the pleura as it enters the thoracic cavity, while on the right the pleura and esophagus come in contact at a lower level behind the pericardium. Thus, in approaching the mediastinum on the right, there is less risk of injury to the pleura.

Under local anesthesia, an incision from 5 to 6 cm. long is made over the anterior margin of the sternocleidomastoid muscle down to the suprasternal notch. When the

sternocleidomastoid, sternohyoid and sternothyroid muscles have been exposed, these structures, together with the contents of the carotid sheath, are retracted laterally, exposing the trachea and, at a deeper level, the right side of the esophagus. It may be necessary to elevate the right lobe of the thyroid, in which event care must be taken not to injure the inferior thyroid artery which enters the gland on its posterior surface close to its inferior pole. At this point one must choose to enter by blunt dissection either the anterior mediastinum, which lies between the trachea behind and the arch of the aorta in front, or the posterior mediastinum along the lateral wall of the esophagus. A guide to the procedure of choice might be found in a study of the etiologic factors producing the abscess. If suppuration has descended into the visceral space, it is presumptive evidence that the inflammatory process within the mediastinum will be found in its anterior part; if, on the other hand, the course of invasion is along the retrovisceral space, the posterior mediastinum becomes the logical site of predilection. A drainage tube is introduced and suction applied at frequent intervals. Some advantage may also be derived from postural drainage by placing the patient in the Trendelenburg position.

SYMPOSIUM ON VASCULAR THROMBOSIS* OBSERVATION ON THE USE OF HEPARIN

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Heparin is a complex organic anticoagulant derived from tissues. Its exact composition and mode of action are unknown.¹ Charles and Scott,³ and others have prepared pure stable solutions of heparin for experimental or clinical use. A highly purified heparin, known as liquaemin, is being distributed in the United

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States.* Liquaemin is standardized in anti-coagulant units. One unit equals the quantity of liquaemin required to keep one cubic centimeter of recalcified citrated beef plasma liquid for four hours at 37° C. Each cubic centimeter of liquaemin contains 2000 ACU's. Administration is intravenous. Six 5 c.c. vials of liquaemin, containing 60,000 anti-coagulant units are used per liter of normal saline or glucose solution. Two thousand centimeters of this mixture are administered every twenty-four hours. The rate of infusion is adjusted so that a clotting time (by the multiple tube technic of Lee and White) of fifteen minutes plus is maintained. Heparinization may be continued from five days to three weeks depending on the response and indications. Protamine¹⁻⁸ may be used to terminate the heparinized state, but cessation of the infusion usually results in a normal clotting time within thirty to sixty minutes.

Heparin in pure form is not toxic. No undesirable effects have been reported and confirmed except those which might be expected as a result of the prolonged coagulation time. Heparin has been injected into the donor in order that blood may be collected for transfusion, without coagulation.⁵ It has been shown that heparin will prevent thrombosis due to chemical or mechanical trauma to blood vessels and that healing occurs in these vessels without thrombus formation.⁴ Heparin has been used to prevent postoperative thrombosis in general.^{12, 13} It has been used in the treatment of retinal vein thrombosis.⁶ It will prevent the development of cardiac mural thrombi⁹ in experimental myocardial infarction and is used as an adjunct to the treatment of bacterial endocarditis with sulfapyridine.^{10, 11} Its use in subacute bacterial endocarditis is based on the theory that "the prevention of new fibrin and platelet formation might allow the valvular process of repair and sterilization to gain ascendancy and thus terminate the infection." Four different preparations of heparin have been used

in the various experimental and clinical studies in the literature. The dose used is one which will prolong the coagulation time to the limit desired and this varies with the preparation and the patient.

CASE REPORT

I shall illustrate the clinical use of heparin by describing the case of Mrs. F. T., who was admitted to the hospital on September 19, 1940. Approximately eleven months ago the patient developed an attack of paroxysmal auricular flutter. She had rheumatic heart disease of an unknown duration. The patient was given digitalis and quinidine and she recovered from the tachycardia and accompanying heart failure after bed rest, lasting approximately one and one-half months. The diagnosis on discharge was rheumatic heart disease; mitral stenosis; auricular fibrillation; chronic myocarditis; cardiac enlargement; congestive failure, class 2-B. During this illness the patient developed a morning diarrhea producing four or five stools. *Giardia lamblia* were found and occasional doses of sodium sulphate prevented a recurrence of the symptoms.

Present illness: On September 14, 1940, while out of the city, the patient developed a cramping abdominal pain and passed three semi-liquid stools. Tenderness was noticed in the right lower abdominal quadrant. Although the patient had no fever at this time, she was returned to New Orleans for observation. A stool examination on September 16 revealed *Entameba histolytica*. Anayodin was prescribed and the next day the patient took three pills; during the night she passed ten liquid stools with tenesmus. The following morning after a breakfast of cream cheese, she developed severe cramping pain over the entire abdomen and the temperature went up to 99.6. The pain continued intermittently and on September 18, the blood count revealed 13,500 white blood cells per cu. mm. with 93 per cent neutrophils. The urine showed a trace of albumin, a 2 plus acetone and many white blood cells. Food caused nausea and vomiting.

On the morning of September 19, the patient's abdomen was slightly rigid and pain had shifted to the left costovertebral angle. The patient was brought to the hospital in spite of vigorous protest. A consultant was called. The temperature was 101° F. A blood count revealed 4,170,000 red blood cells per cu. mm., 89 per cent hemoglobin, 26,200 white blood cells per cu. mm. and 97 per cent neutrophils and 3 per cent small mononuclears. The patient complained of pain in the sixth segment of the left side of the chest anteriorly which was exaggerated by respiration. Physical examination of the lungs was negative. A negative urinary sediment on this date, plus the findings of pus and albumin on the preceding day, plus the pain in the left costovertebral angle,

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suggested a blocked kidney. A urologist was called and the patient was cystoscoped with entirely negative findings. An EPA of the chest showed an enlarged heart with very large auricles and an area of increased density in the lower left lobe of the lung towards the pulmonary sulcus in the axillary region. In the afternoon the patient developed a dry cough. Since no sputum could be obtained, sulfathiazole 1 gram every four hours was tried for three days without effect on the temperature or pulmonary findings. Emetine-hydrochloride and diodoquin tablets were prescribed.

By September 23, the red cell count dropped to 3,430,000, hemoglobin to 65 per cent. The white cell count was 19,200 white blood cells per cu. mm., 93 per cent being neutrophils. Iron therapy was begun. Sulfathiazole was discontinued and neoprontosil, grs. 10, every four hours, was substituted. The dose of diodoquin was increased to 6.4 grams daily. Two thousand centimeters of 5 per cent glucose and normal saline were given by infusion for dehydration and nausea. On September 24, the patient's bowels were moving normally and the abdominal symptoms were much improved. The temperature continued to be septic, varying between normal and 101° F. A blood culture was made. On September 27, the blood count was 15,860 white blood cells per cu. mm., with 73 per cent neutrophils. On the evening of September 28, the patient complained of numbness in the right hand and emetine-hydrochloride was stopped because of possible peripheral neuritis.

On September 29 the patient had chilly sensations through the night with mild rigors. At about four a. m. she noticed that she could not move the left leg. A few moments later the leg began to pain severely. Upon examination at 6 a. m. the leg was found to be bluish and mottled to a point eight inches above the knee. The entire extremity was cold and dry with all the small varicosities distended with blackish blood. Blanching could be produced by pressure, color returning slowly within thirty-five seconds. A diagnosis of embolism of the left femoral artery was made and in retrospect the abdominal symptoms and pulmonary infiltration were thought due to infarcts resulting from small emboli. A heat tent was placed over the extremity and one and a half hours later the extremity was warm and pink, the venous engorgement having disappeared. An hour later the leg became blanched and pale from the middle of the thigh downward. The heat tent was removed for ten minutes and the leg found cold and pale in comparison to the opposite extremity. In view of the patient's general condition, conservative therapy was the consensus from the beginning in spite of the 40-67 per cent chance of gangrene of the left leg. A surgeon was consulted and a para-vertebral sympathetic block was done at approximately noon, eight hours after the clinical onset of embolism. The sympathetic block relieved

the pain but the temperature of the extremity was unchanged. The sympathetic block was repeated nine hours later, at 9:30 the night of September 29, to relieve a recurrence of severe pain in the left leg. No blood pressure change resulted from this procedure. The blood count showed 3,730,000 red blood cells, 89 per cent hemoglobin, 23,500 white blood cells, 92 per cent neutrophils. On the second day of the embolism the patient was given a transfusion of 500 c. c. of citrated blood and oxygen was begun, using the Boothby-Lovelace mask, in an effort to increase the oxygen carrying power of the blood to the involved extremity. At noon the nurse noticed that the pulse could not be felt in the right arm. The blood pressure in the left arm, at that time, was 120/80 approximately, and in the right a few sounds could be heard between 80 and 74 mm. of mercury. Possible embolism or thrombosis of the right brachial artery or minor embolisms of its branches with arterial spasm, was suspected. Heparinization was suggested. One of us thought this might cause loosening of the auricular thrombi and further embolism. After discussion it was agreed that death would result if gangrene developed. Therefore on the third day of the embolism, liquaemin was obtained and a continuous infusion containing 60,000 anti-coagulant units per 1000 c. c. of 5 per cent glucose was begun. The coagulation time by the capillary tube method rose from 4 minutes to 5 minutes 40 seconds. The patient complained of numbness in the right leg in the afternoon. The blood count was essentially unchanged. The NPN was 54 mg. per cent, urea nitrogen 27 mg., uric acid 3.4 mg. per cent, creatinine 2.3 mg. per cent and dextrose 84 mg. per cent. On the fourth day, the clotting time (by Lee and White method) increased to fifteen minutes. On the fifth day the needle came out of the patient's vein while the coagulation time was ten minutes. Within thirty minutes after this accident the coagulation time had decreased to within one-half to one minute. The needle was reinserted into the left anti-brachial vein and within three hours the coagulation time was 7 minutes. On October 3, three days after the initiation of heparin therapy, pulsation returned in the right arm and the blood pressure once more reached the level found in the left, that is, approximately 128/80.

Between the sixth and eighth day following embolism, that is, the fourth through the sixth day of heparinization, the patient showed a gradual accumulation of fluid in the tissues. The edema affected the entire body and was particularly visible in the deep structures of her neck. The amount of fluid per unit of liquaemin was cut in half in an effort to minimize this accumulation.

No improvement was noted in the circulation through the left leg until the sixth day of heparinization. At this time blanching produced by pressure would disappear rapidly in every part of the

leg except that from a point two inches above the ankle downward. On this day the blood chemistry returned to normal levels. The serum proteins were normal. Cardiac failure and possibly increased capillary permeability were the only factors found to explain the edema. In spite of favorable progress of the embolic process, mental apathy, delirium, period of irrational behavior and muscle twitching occurred and apparently paralleled the degree of edematous swelling. These symptoms remained unchanged between the eighth and tenth post-embolic days. The coagulation time was maintained between 12 and 23 minutes. On the eighth day of heparinization, the serum protein, blood chloride and NPN phosphorous, calcium and carbon dioxide combining power were within normal limits. The red cell count was 3,850,000, 76 per cent hemoglobin, 15,900 white cells per cu. mm., 80 per cent neutrophils, mean corpuscular volume 40 cubic microns. Therefore, no satisfactory explanation could be found for the mental symptoms, plus fibrillary muscle twitchings, except toxic encephalitis or cerebral edema. The temperature returned to normal for the first continuous twelve hour period. On this date the patient developed a Cheyne-Stokes type of periodic breathing which was exaggerated by the sedatives used and partly relieved by coramine.

The coagulation time was maintained between 20 and 30 minutes until October 12, the fifteenth day after the occurrence of the embolism. On this same day the edema and the periods of irrational behavior began to disappear and the circulation in the leg to improve. The patient was able to dispense with oxygen therapy for short periods. On the following day oxygen therapy was discontinued and the liquaemin gradually decreased during the next four days. The edema gradually disappeared and could not be demonstrated on October 16, the eighteenth post-embolic day, with the exception of some slight swelling which persisted in the left leg. On this date the liquaemin was discontinued. Two days later the coagulation time returned to normal.

On the twenty-sixth post-embolic day the blood count was 4,210,000 red blood cells, 80 per cent hemoglobin, 11,200 white blood cells per cu. mm., 73 per cent neutrophils, 27 per cent small mononuclears. The left lower extremity was slightly paler than the right and all sensation below the knee was interpreted as burning. On the twenty-ninth post-embolic day the heat tent was discontinued and the foot wrapped in cotton batting, retained heat being sufficient to keep the foot warm. On the thirtieth post-embolic day, elevation of the foot resulted in blanching and burning pain from two inches above the ankle downward into the left foot. Lowering the foot below the body level caused it to assume a bluish color, but did not seem to increase its warmth. Careful examination at this time revealed marked atrophy of the muscles with

some contraction of the gastrocnemius tendon, placing the foot in the equinus position. Some slight movement of all muscle groups was possible. Deep sensation was destroyed below the middle of the leg. A Sanders vasoscillator was secured to increase circulation in the extremities. One half hour after the oscillation started the patient became "sea-sick." Sea-sickness was avoided in the future by permitting the bed to be stationary for one hour after meals. On the thirty-fourth post-embolic day the white blood count was 13,100 per cu. mm., with 78 per cent neutrophils. Thiamin-hydrochloride 20 mg. intra-gluteally, three times daily, was given for the ischemic neuritis. The stool was examined for ameba and none were found, therefore, the diodoquin was discontinued. On the thirty-sixth postembolic day, the patient's temperature, pulse and respiration were within normal limits. Simple exercises were suggested for the left foot and two days later the patient was able to stand without assistance but with considerable pain due to stretching of the gastrocnemius group of muscles.

Improvement has continued uneventfully up to the present. Two months after the embolism the patient was permitted to walk about her room using soft slippers; however, she was required to continue to lie upon the vasoscillator for a minimum of one hour, three times daily. At present the patient walks without visible impairment of function of the left lower extremity and carries on modified household duties. The left leg is much warmer than the right and behaves as does the completely sympathectomized extremity. Slight residual atrophy of the muscles of the left leg may be seen. Hyperesthesia is present below the ankle.

SUMMARY

This case history illustrates many of the problems met in the clinical use of heparin. The preservation of life and limb was apparently made possible by its use.

Heparin should be used in medical disorders as a method of minimizing infarction due to proved thrombosis or embolism. If reasonable doubt exists that sudden vascular occlusion is due to thrombosis or embolism, or if bleeding due to the prolonged coagulation time cannot be controlled by other measures, it should not be used.

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RATIONAL THERAPY OF THROMBOPHLEBITIS

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Although the immediate consequences of thrombo-embolic phenomena are generally realized, its subsequent morbidity is insufficiently appreciated. The patient, apparently recovering from an operation and preparing to leave the hospital, who suddenly dies from a massive pulmonary embolism forms a picture of a tragic catastrophe. Although not as tragic in its immediate consequences, the patient who recovers from a postoperative or post-puerperal thrombophlebitis frequently develops persistent thrombophlebitic sequelae, such as postphlebitic edema, varicosities, and ulcerations, resulting in an extremity which is a handicap the rest of his life. For these reasons, the immediate as well as the subsequent consequences of thrombo-embolic phenomena are of concern to the physician. Moreover, this complication is not of infrequent occurrence. Of even greater importance is the

fact that there is apparently an increasing incidence in recent years. For example, it was found that during the period 1920-1927 there was a five-fold increase in postoperative thrombo-embolism.¹⁻³ It is difficult to establish the exact incidence of thrombo-embolic phenomena, but some idea of its relative frequency may be obtained from the following statistics. Several observers^{4, 5} have found that pulmonary embolism was considered the cause of death in approximately 8 per cent of all autopsies. At the Wisconsin General Hospital, Burke⁶ found that of 2,613 autopsies there were 648 (24 per cent) cases with evidence of thrombosis. Of this number 427 were strictly medical, 195 surgical, and 26 miscellaneous. It may be observed from these statistics that thrombosis follows medical conditions even more frequently than surgical procedures. The occurrence of postoperative thromboses also varies, depending upon the type of operation. In general, the highest incidences are found following abdominal and pelvic procedures. In a collected series⁷ of 133,458 operations, postoperative thromboses were found in 0.6 per cent. At the Mayo Clinic, of 172,888 operations, postoperative venous thrombosis and pulmonary embolism occurred in 1,665, an incidence of 0.963 per cent. From these statistics it becomes obvious that intravascular venous clotting occurs with sufficient frequency to warrant serious consideration.

ETIOLOGY

The etiology of thrombophlebitis has not been established, but a number of factors have been found which play significant roles in its development. No attempt will be made here to discuss these in detail as they have been considered in previous publications.^{7, 9} Briefly, these factors fall into two general groups; (1) predisposing, and (2) precipitating. Of the former the most important are constitutional diatheses, obesity, debility, systemic infections, pregnancy, trauma, operation, and circulatory disturbances. The precipitating factors consist of vas-

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cular changes, blood changes, infections, and circulatory retardation. It has been observed that a definite familial tendency may exist in some cases and that certain individuals belonging to the asthenic adipose type are more likely to develop the complication. Obesity has been considered as a factor in the production of thrombosis, because the incidence of the complication is higher in these cases and because of the greater likelihood of circulatory retardation and the possible liberation of large quantities of lipoid thromboplastic substances. The frequency of venous thrombosis in carcinoma has recently been emphasized.¹⁰ Systemic or localized infections are also believed to predispose to thrombosis. Of the former, the most important are typhoid fever, influenza, and arthritis. Pregnancy is considered a factor because of the increased intra-abdominal tension and pressure on the pelvic veins resulting in increased venous pressure in the lower extremities. Trauma, either operative or non-operative, may also be an important factor by causing direct injury to the vessels or as a result of injurious substances derived from destroyed tissue.

Certain changes in the vessel wall as well as in the blood may form a precipitating factor in the development of thrombophlebitis. The blood changes consist of those occurring in the plasma as well as in the cellular element. Of the former, the most important are increased viscosity, hyperglobinemia, increased fibrinogen content, increased antitryptic power, peptidase and calcium content, and decreased carbon dioxide combining power. Changes in the cellular element consist principally of increased platelet count and an increased agglutination tendency. The red blood cells show an increased sedimentation rate and the leukocytes show an increased agglutinability. Infection may play an indirect role by producing a decrease in the electric charge of platelets, resulting in their increased agglutinability, or a direct role by causing endothelial destruction, resulting

in the liberation of tissue changes and the production of intravascular clotting. Of the precipitating factors, circulatory retardation is probably the most significant. Any condition which will interfere with the normal return circulation and predispose to venous stasis may act as a precipitating factor. Accordingly, posture, immobility, hypopnea, and increased abdominal tension may produce circulatory retardation.

CLINICAL MANIFESTATIONS

The clinical manifestations of thrombophlebitis are usually quite apparent and may be considered under two groups; systemic and local. Of the former, fever and increased pulse rate are the most prominent. Fever is usually of the low-grade character and the temperature curve may be of a characteristic step-ladder type. However, in cases with femoro-iliac thrombophlebitis, particularly if the infection is marked, the temperature may be of a hectic type associated with chills. Pain is quite a prominent manifestation and is usually limited to the involved area, but is aggravated by motion and dependency. An increased pulse rate is a consistent finding and may be of great significance, because it is frequently the first evidence of the development of the condition. Of the local manifestations, swelling of the extremity is probably the most common. This depends, in great measure, upon the type of involvement. It is most marked in femoro-iliac thrombophlebitis and in involvement of the deep veins of the pelvis. It is characteristically aggravated by dependency of the extremity. Tenderness is most marked over the involved area. Color changes as well as temperature changes may be observed in the involved extremity. In cases with superficial vein involvement there is redness as well as increased warmth over the involved area. On the other hand, in deep vein involvement, there is frequently pallor and a cyanotic hue, and in some instances there is an actual decrease in surface temperature.

TREATMENT

In a previous publication,¹¹ the treatment of intravascular venous thrombosis was considered under the following classifications: (1) prophylaxis; (2) conservative therapy, and (3) radical therapy. No attempt will be made here to discuss these in detail, as they have been adequately reviewed previously. Of the prophylactic measures, the most important are: (1) hydration; (2) mobilization; (3) respiratory stimulation; (4) prevention of increased abdominal tension; (5) application of heat; (6) the administration of sodium thiosulphate; (7) hirudinization, and (8) heparinization. The significance of preventing dehydration lies in the fact that it increases the viscosity of the blood and thus favors thrombosis. As previously emphasized,⁷ circulatory retardation is one of the most important precipitating factors in thrombosis. For this reason, any condition which tends to produce circulatory retardation should be combated. The quiescence of a patient following an operation is likely to decrease cardiovascular activity. In such cases, early postoperative mobilization is an important prophylactic measure. Patients should be instructed to move their extremities frequently. Also, following an operation there is a tendency towards diminished respiratory activity. This may be due to pain occasioned by movement of abdominal muscles and by increased intra-abdominal pressure due to constricting bandages or to ileus. For these reasons, the patients should be instructed to take deep breaths frequently during their waking hours and every attempt made to avoid tight dressings and to prevent the occurrence of ileus. The application of heat in the form of a heat tent to the lower part of the abdomen is considered a significant prophylactic measure. This is due not only to its beneficial effect on the tone of the intestine, but also because it produces vasodilatation of the peripheral vessels. For this reason, the tent should be large and should cover the entire lower portion of the body so that

the lower extremities also receive the heat.

Sodium thiosulphate has been reported to be of value in the prevention of thrombosis. A test designated as the test for plasma clotting index is used to determine patients who are potential clotters, and if a high plasma clotting index is found, 10 c.c. of a 10 per cent solution of sodium thiosulphate is administered intravenously on three successive days. The prophylactic significance of hirudinization and heparinization is based upon their anticoagulant activities. The use of the former has been emphasized in previous publication.¹³ More recently, several investigators have presented experimental and clinical studies which show that by the intravenous administration of purified heparin over a period of hours it is possible to diminish the coagulation time considerably.¹⁴ This procedure has been employed clinically in patients in whom extensive surgical operations have been performed and in whom thrombosis is likely to occur.

Once the condition of thrombophlebitis has occurred, some type of conservative therapy should be instituted. The classical method of therapy consists of mobilization and elevation of the extremity. This is based upon the rationale of placing the part at physiologic rest to minimize the danger of breaking off of an embolus and to relieve edema by favoring lymphatic flow. Heat is usually applied to hasten the normal involution of the thrombus in periphlebitis; that is, the inflammatory changes. In our experience, however, the best method of therapy consists of procaine hydrochloride block of the regional sympathetics. This method of therapy is based upon the conception that the mechanism of the development of clinical manifestations in thrombophlebitis is the initiation of a vasomotor reflex as a result of impulses originating in the thrombosed venous segment.¹⁵ That vasospasm is one of the most important factors in the production of the clinical manifestations has been clearly demonstrated by clinical and experimental ob-

servations. In animal experiments we have been able to show that localized chemical phlebitis may produce such marked arteriolar vasospasm that practically all peripheral pulsations disappear.¹⁶⁻¹⁸ It was also found that this mechanism is the result of vasoconstrictor impulses originating in the involved segment and transmitted over the sympathetic nervous system. Interruption of these impulses either by chemical or surgical section prevented the occurrence of vasospasm or restored normal pulsations. The mechanism by which vasospasm produces edema in the involved extremity is based upon the operation of several factors: (1) increased filtration pressure, (2) anoxia of the capillary endothelium, and (3) diminution in the flow of lymph. The increased venous pressure not only affects peripheral volume pulsations, but increases filtration pressure which favors transudation of intravascular fluid into the perivascular spaces. As a result of the arteriolar spasm and evidences of diminished vascularity, a relative anoxia of the capillary endothelium probably occurs, favoring increased permeability and further increasing the transudation of intravascular fluid. It has been clearly demonstrated¹⁹⁻²¹ that one of the most important factors in the flow of lymph is the presence of pulsations. As peripheral volume pulsations are markedly diminished in thrombophlebitis, it is logical to assume that there occurs a relative lymph stasis. This results in stagnation of tissue fluids and accumulation of proteins in the perivascular fluids, thus increasing the osmotic pressure of the latter and setting up a vicious circle. It becomes obvious, therefore, that vasospasm plays a most significant role in the production of the clinical manifestations in thrombophlebitis. It is also evident that interruption of the vasoconstrictor impulses by procaine hydrochloride block of the regional sympathetics would break this vicious circle by increasing pulsations, improving circulation and tissue oxygenation, and increasing lymph flow.

RESULTS OF THERAPY

That this occurs is clearly demonstrated by the results obtained from the clinical application of this form of therapy. These have been reported in previous publications and only a brief summary will be presented here.^{9,11,16,22,23} A total of forty-one patients have been treated by procaine block of the sympathetics. Probably the most dramatic result of this form of therapy is the prompt and permanent relief of pain, usually within fifteen minutes to one-half hour after the block. Of the 41 patients, 35 (85.4 per cent) were permanently relieved by the first block. Only 6 (14.5 per cent) required a second block for the permanent relief of pain. Another striking result of this form of therapy is the rapid subsidence of fever. Of the 41 patients, 25 (60.9 per cent) were fever-free in forty-eight hours or less. Only two patients had fever longer than a week and this was due to other complications. Complete subsidence of edema occurred within four days or less after treatment was begun in 50 per cent of the cases and within five to eight days in 30 per cent. In only two patients did edema last as long as twelve days. Of particular significance in the evaluation of this form of therapy is the duration in the hospital and the follow-up results. Two-thirds of the patients were discharged from the hospital on the fourth to the eighth day after treatment was begun and 23 per cent from the tenth to the twelfth days. Only four patients remained in the hospital more than twelve days and this was due to reasons other than those occasioned by the involved extremity. In the follow-up observations on a number of these patients over periods varying from six months to two years there has been no evidence of recurrence of post-phlebitic manifestations.

Procaine hydrochloride block of the regional sympathetics may be performed relatively easily and the technic has been described and illustrated previously.²⁴ For the lower extremity involvement the

patient is placed in the lateral recumbent position with the affected side up. The skin is prepared over the lumbar area and wheals are made in the skin by intracutaneous injection of one per cent procaine hydrochloride at points approximately two to two and one-half finger breadths lateral to the upper part of the spinous processes of the first, second, third, and fourth lumbar vertebrae. A 20 or 22 gauge needle about 8 to 10 cm. in length is inserted vertically through each wheal until the transverse process of the corresponding vertebra is reached. The direction of the needle is then changed slightly, either superiorly or inferiorly, so that it can project beyond the process and is pointed slightly towards the midline. It is then inserted for another two and one-half finger breadths so that its point impinges against the anterolateral surface of the body of the vertebra in the retroperitoneal space where the lumbar sympathetic ganglia and trunk lie. After aspirating to make certain that the needle is not in a blood vessel, 5 c.c. of 1 per cent procaine hydrochloride solution are injected through each needle.

For the upper extremity the anterior approach is considered more desirable. An intracutaneous wheal of procaine hydrochloride is made in the skin immediately over the upper border and 1 cm. medial to the midpoint of the clavicle. A needle similar to that already described is introduced on a horizontal level with the clavicle and directed posteriorly and medially at a 45 degree angle with the midline until it impinges against the anterolateral surface of the body of the seventh cervical vertebra or at the junction between the seventh cervical and the first thoracic vertebrae, where the stellate ganglion lies. After ascertaining by aspiration that the needle is not in a vessel, 10 c.c. of 1 per cent procaine hydrochloride solution are injected. The presence of a Horner's syndrome, anhydrosis, and increase in warmth of the extremity on the injected side indicate a satisfactory injection.

SUMMARY

1. The frequency and significance of thrombo-embolic phenomena are emphasized.

2. The etiologic factors in intravascular venous clotting consist of two groups; (1) predisposing, and (2) precipitating. These are briefly reviewed.

3. Vasospasm is considered one of the most important factors in the production of the clinical manifestations of thrombophlebitis. The mechanism is the initiation of a vasomotor reflex over the sympathetics as a result of impulses originating in the thrombosed venous segment. As a result of vasospasm there occurs increased filtration pressure, anoxia of the capillary endothelium, and diminution in the flow of lymph, setting up a vicious circle. Interruption of the vasoconstrictor impulses by procaine hydrochloride block of the regional sympathetics breaks this vicious circle by increasing pulsations, improving circulation and tissue oxygenation, and increasing lymph flow.

4. The results obtained by procaine hydrochloride block of the sympathetics in 41 cases of thrombophlebitis are presented. These results clearly demonstrate the superiority of this method of therapy.

5. The technic of procaine hydrochloride block of the sympathetics for the upper and lower extremities is described.

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PLASMA THERAPY*

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We are using the term plasma to define the fluid portion of blood separated without clotting. This substance has recently come into widespread usefulness in clinical medicine and surgery because of several inherent virtues. In the first place, plasma can be pooled and stored for indefinite periods. This makes it an ideal perfusion

fluid, since it is immediately available without the drawbacks of typing and cross-matching. It may be transported over long distances without deterioration and its usefulness is quite obvious therefore in military practice and in those emergencies that follow in the wake of natural disasters.

Since the question of the relative safety of using untyped and unmatched plasma will occur to those who are contemplating its use, a few observations on our experience will be set down. We have been using, now for almost seven months, pooled incompatible plasma almost exclusively. It is our practice to type all donors and record their group together with their Kline reaction on the blood bottle. This is done mainly for pooling purposes, for we have not, except on rare occasions, given type-specific plasma.¹ It would indeed be a great handicap if this virtue of universal acceptability were denied plasma as is whole blood.

Titration run by us on pooled plasma have given repeatedly low values for Alpha and Beta agglutinins. The suppression of agglutinins by the simple process of pooling has been quantitatively studied by Levinson² who found uniform isoagglutinin suppression in pooled serum, in spite of the fact that the contributing sera possessed high titers. These facts indicate that the neutralization mechanism of tissues and sera provide a wide margin of safety for the recipients' cells.

The plasma used by us has been prepared by simple sedimentation. Aspiration is performed after twenty-four to one hundred and twenty hours with a simple three-way petcock syringe, details of which are described elsewhere.¹

PHYSIOLOGIC ASPECTS

Plasma may be considered as a liquid suspension of three proteins, namely, albumin, globulin and fibrinogen. Of these three, albumin remains the smallest in molecular size but the greatest in colloid osmotic effects. Total protein values for plasma range from 6.5 to 8.5 gm. per 100 c. c. Fibrinogen is intimately connected with the clotting mechanism, while the other two are important in the part they play in stabiliz-

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ing the osmotic pressure so that adequate balance between tissue fluids and plasma can be maintained in the capillary circulation.

The regeneration speed of the blood proteins, albumin and globulin, is a slow but constant process. This is in direct contrast to fibrinogen³ which appears to be replaced quite promptly. The present ease of availability of citrated plasma has overcome the former need for an adequate and easily administered protein.

Several years have now passed since the introduction of banks for the preservation of whole blood. It is now recognized that certain changes are effected by storage, which decidedly impair the usefulness of this material. A definite diminution in the prothrombin levels together with a like loss of platelets and white blood cells is noticed.⁴ More serious is an elevation of plasma potassium. The diffusion of potassium has been found to be considerable by Scudder,^{5,6} Bull and Drew.⁴ They have cautioned against the use of overaged preserved whole blood in those patients whose excretory powers are already compromised. In severe hemorrhage and shock it is the part of prudence to refrain from using aged blood. It is entirely conceivable that inattention to these facts may account for very serious transfusion effects.

The progressive deterioration of preserved whole blood is contrasted with the apparent stability of citrated plasma.^{5, 6, 7} Scudder has made careful studies of the electrophoretic pattern of plasma proteins after the method of Tiselius⁸ and others⁹ and has found very minor changes in the various fractions after as much as fifty-three days of refrigerated storage. He demonstrated distinct changes in unrefrigerated specimens. It may be concluded that plasma is an ideal universally acceptable substitute for whole blood, being a safe and rational material for the treatment of shock and other indicated conditions.

The importance of fluid and electrolyte balance in the treatment of surgical and medical conditions is widely appreciated. Reliable methods for the determination of

water and salt balance are available in most hospitals. With the present understanding of the potassium factor in shock it is very important to pay particular attention to sodium balance. Scudder believes that adequate available sodium helps maintain normal balance between intracellular potassium and extracellular sodium. A diffusion of potassium into the cells results from an adequate concentration of sodium. These may be important factors in the prevention of secondary shock.

The understanding of electrolyte balance is very basic to the construction of any rational plan for the usefulness of plasma. It is fortunate indeed that the importance of the electrolytes is so widely appreciated. Plasma is a valuable vehicle for the convenient restoration of physiologic equilibrium and it is better than coincidence that there are now available simple methods for both the accurate appraisal of electrolyte balance, total proteins^{10, 11} and plasma volume.¹² By making use of these laboratory procedures a rational scientific adjustment of body fluids can be effected.

MEDICAL INDICATIONS FOR PLASMA

Plasma has a field of usefulness in gastroenterology, in certain restricted cardiac states, and in occasional nephritic or nephrotic conditions.

In gastroenterology the indications for its use are found in various nutritional edemas. There is the situation where the intake of protein is inadequate either from starvation or other causes. These exogenous nutritional edemas are corrected by diet or plasma infusions. The latter is considered only if operative procedures are contemplated or the individual is in an extreme cachectic condition. The same type of edema is frequently seen also in those states where dietary restrictions have been impaired, due to administration of large amounts of crystalloid solutions with consequent protein depletion. Naturally the frequency of occurrence of these complications will depend on the attention paid to protein and electrolyte levels. In a like manner are other nutritional complications that have their beginnings in certain endogenous

states such as is found in the liver insufficiency of cirrhosis. We have seen remarkable effects from large infusions of plasma in these states.

Hemorrhagic gastrointestinal states such as hemorrhagic gastritis, bleeding gastric or duodenal ulcer, and ulcerative lesions of the large bowel are benefited by plasma therapy. We have found low protein values in the conditions enumerated and have noticed most remarkable recoveries following pooled plasma infusions as will be described in our group of clinical cases. The explanation of these hypoproteinemic states may be laid at the door of both chronic blood depletion and also inadequate dietary intake, caused from patients' apathy toward food, or in the diarrheic states to the inability of the gastrointestinal tract to digest properly and utilize the foods ingested.

Postoperative obstructions after a surgical operation of the gastrointestinal tract have been described by such men as Ravdin,^{13, 14} Jones and Eaton.^{15, 16} Tissue edema due to hypoproteinemic states may actually mimic a technic defect in the anastomosis.¹⁴ It is evident that these complications occurred in those patients with latent edema, not grossly visible before operation, but obviously visible after excessive electrolyte administration with a consequent loss of more blood protein. Mecray, Bardin and Ravdin^{17, 18} have also shown that the delay in gastric emptying can be charged up to tissue edema, easily corrected by plasma infusions. Small bowel motility is similarly affected.

A noteworthy contribution to the understanding of the relationship of altered protein levels in intestinal obstruction has been made by Fine, Hurwitz and Mark.¹⁹ In experimental intestinal obstruction in animals they have found a fall in plasma volume sufficient to account for the animal's death. They have observed a remarkable change in plasma volume after decompression. It appears that distention is a very important factor in plasma loss. Their experiments have shown that the intravenous administration of electrolytes does not prevent plasma loss but that injection of equal or

small amounts of plasma maintains the plasma volume. This, together with decompression, appears to be the ideal way of correction of this imbalance. Obstructive distention of the large bowel is not accompanied by plasma loss.

Plasma transfusions have a place in the treatment of severe infection much the same as whole blood or serum. Where the indications do not call for red blood cells, plasma serves as an excellent medium for the infusion of valuable protective antibodies. Tatum²⁰ reports the giving of plasma until the red blood cell count drops to 4,000,000, then giving whole blood to bring the count back to normal, continuing from there with plasma as long as needed. Severe infection with its concomitants of fever and increased metabolism call for replacement of valuable protein. The losses sustained in pus and urine need to be replaced to prevent more serious complications. As Tatum²⁰ has remarked, "Maintenance of plasma proteins is much less difficult than the restoration."

The content of specific antibodies has been reported by Strumia²¹ as remaining stationary in the plasma for at least thirty-two days. The activity of complement begins declining after three or four weeks.

Use of pooled lyophile serum in the prophylaxis of infectious diseases has been described by McGuiness, Stokes and Mudd²². The drawbacks with serum are frequent occurrence of severe reactions. Tatum²⁰ and Hill²³ mentioned the usefulness of pooled convalescent plasma. It deserves wide clinical trial as it is both safe and entirely free from reactions.

Plasma has a place in the treatment of severe bacillary dysentery. The extreme dehydration and fever depletes body protein and cuts down blood volume. Adequate attention to electrolytes and protein levels will help in overcoming some of the dire effects of this disease.

Some observations on the edema associated with cardiac cases have been made by Muntwyler.²⁴ Cardiac cases with edema have a tendency to a lowered colloid osmotic pressure and plasma protein. They found

that the colloid osmotic pressure in these cases was at a higher level than in cases of nephritis with edema.

The edema of nephritis was shown to be consistently accompanied by a lowering of both plasma protein and plasma colloid osmotic pressure.²⁴ However, it is pertinent to remark that complete disappearance of edema may occur on a salt-free diet, even though the plasma proteins are below the values associated with edema. However, the tendency of edema will remain unless this deficiency is overcome. The oliguria and edema of nephrosis are similarly tied up with low plasma protein values. Remarkable instances of diuresis have been reported by the use of lyophile plasma and serum in the treatment of these conditions by Aldrich.²⁵

We are presenting three case reports taken from a large series collected over a period of nearly seven months. At a later date we intend to present a detailed analysis and evaluation of the use of plasma in this group.

CASE NO. 1

H. K. was admitted to Touro Infirmary for treatment of peptic ulcer. He was put on a milk and cream regimen, plus the use of an antacid preparation, magnesium trisilicate. He responded well to treatment with a clearing up of most of his presenting complaints.

Because of the persistence of red blood cells and pus cells in the urine a urologic consultant was called. Cystoscopy and bilateral pyelography was performed. A complete anuria developed which persisted for about seventy-two hours. There was an elevation of the non-protein nitrogen and the patient appeared quite toxic. Total proteins amounted to 4.96; the eyelids and face appeared puffy. In addition to the usual measures against anuria, the patient was given 1200 c. c. of plasma as a hypodermoclysis. The blood protein the next day rose to 5.13. By coincidence or otherwise the patient began to urinate. This is only cited as a case of hypoproteinemia complicated by anuria; no definite relationship is claimed.

CASE NO. 2

W. S., a lad of twenty years, was admitted to the hospital with a diagnosis of ulcerative colitis. He was tried on the dietary restrictions customarily used in the treatment of this disease, but showed no particular response. He had from five to fifteen bowel movements per day. He grew toxic gradually, eventually running a temperature

between 101 and 104 daily. Because of difficulty in maintaining his nutrition he was placed on intravenous alimentation. He made good response, growing a little stronger. Exactly seven days later a very obvious swelling of the face, eyelids and forearms because manifest, also some in the sacral region. Total protein at this time was 5.11 mg./100 c. c. blood; red blood cells 4,250,000 and hemoglobin 80 per cent. The patient received 300 c. c. of diluted plasma at this time, at a later date another 300 c. c. Signs of hypoproteinemia promptly disappeared. Patient is now well, having been in a full remission for over 20 weeks.

CASE NO. 3

X. A., aged 52, was admitted to the hospital with a diagnosis of gastric hemorrhage. He appeared ghostly white, the face was swollen, the eyelids were puffy. He was put to bed, given nothing but cracked ice by mouth. Blood studies on admission showed red blood cells 1,670,000; hemoglobin 55 percent Talquist, white blood cells 19,900, with differential of 88 polymorphonuclears and 12 per cent lymphocytes. The blood pressure was 100/60.

Ten days before admission the patient had a pain in the abdomen, more acute after eating. He vomited blood one day before admission and passed black stools. He collapsed for fifteen minutes day after admission.

Twenty-four hours after admission he was given 100 c. c. of citrated plasma diluted with an equal part of 5 per cent glucose in saline. The puffiness and swelling of the face disappeared. He received a total of three more plasma transfusions ranging from 75 to 300 c. c. He showed a progressive improvement and fourteen days after admission had a red blood count of 3,510,000; hemoglobin 72.

COMMENT

Undoubtedly this patient was suffering from the effects of a low blood volume plus a definite hypoproteinemic state. This was promptly corrected by small doses of diluted plasma. What hemostatic effect the plasma played is hard to evaluate. An interesting observation was the marked hematopoietic response apparently elicited by the use of plasma alone. A similar effect has been recently reported.

SUMMARY

A short review of the place of plasma therapy in medicine has been detailed, together with three case reports.

We wish to extend our sincere appreciation to Drs. S. H. Colvin, Jr., pathologist, Paul Milton Goldfarb, R. P. Morrow, Jr., and Robert M. Kimball for their cooperation and helpful aid.

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DISCUSSION

Dr. John Connell (New Orleans): I think this paper was an excellent exposition of the various indications for the use of plasma. I, personally, have had experience with it for about one year at Alexandria, La.; at the Charity institution we maintain a plasma bank. We have given two hundred or more plasma transfusions in the past year. Each day we come across newer and better indications for this type of therapy.

We began therapy with the use of serum instead of plasma. We met no unfavorable results; however, there have been statements in the literature that serum has a slight amount of danger and so we deferred in favor of plasma. I do not believe that serum is dangerous if handled and made up properly. The advantage of plasma is that one can obtain a larger amount of solution. From the mechanical standpoint we use not the gravitation method but the centrifuge, and thus get a maximum amount of plasma from the blood. We have given plasma with a sprinkling of red cells, taking a blood count before administering and find that a small number of cells gives no adverse reaction.

Therapeutically, plasma was first administered for shock. I do not know of anything in the world that works as dramatically in the treatment of shock, either traumatic or secondary. This is most emphatically shown in cases that come under so-called obstetrical emergencies. I know of at least a dozen patients who, I am sure, would have certainly died, whom we saved with the use of prompt plasma medication. There are not many things in our armamentarium with which we can say we have definitely saved lives. To know we have saved a patient from death makes a strong impression on us. We have administered in severe shock and secondary shock, such as in automobile injuries, as much as 2,000 c. c. of plasma. In one case we gave 1,600 c. c. of serum without adverse reaction of any kind. In the whole series of cases seen, only a few have had minor reactions. The reactions have been no more than when giving plain glucose. We think the medium of glucose with the plasma is better than saline.

Using the plasma therapeutically we have come across gradually, more and more extensive use. The field, I think, is just beginning to open as brought out by the many suggestions tonight. We have found it useful, as mentioned in one case by Dr. Katz, even in anemic cases, when impossible to get a blood donor. In secondary anemia, it is definitely stimulating to the bone marrow.

We had an interesting case of aplastic anemia; a man who had had fifty-eight transfusions and was getting to a point where he could not take a transfusion without a severe reaction. I suggested the possibility of using plasma. This has been done and for nine months he has been carried satisfactorily on plasma transfusion every month or six weeks.

An interesting technic has developed in using the red cells. When we come across a patient with severe anemia who does not need plasma we give the red cells to that patient and plasma to the patient who needs the protein content.

I think this mode of therapy is going to be a very important adjunct in our armamentarium along lines not even now investigated and I think we will all use it a great deal in time to come.

Dr. Mims Gage (New Orleans): I would like to ask if the plasma bank he mentioned was not his own private bank, as I have asked for plasma at two of the hospitals and neither one had available plasma.

Dr. Connell has a plasma bank at his hospital in Alexandria which has been in use for over a year. We here in New Orleans should request the various hospitals which we staff to obtain the necessary apparatus for preservation of plasma in order that plasma banks will be available to the medical and surgical staffs.

Dr. D. N. Silverman (New Orleans): For the past six or seven months at Touro and Baptist Hospital we have used this therapy in many patients.

Dr. Ochsner had a patient who lost 2,000 c. c. of blood and in order to keep the man from going into shock and dying we were able to give plasma. Another patient was one Dr. Ambrose Storck had; loss of plasma volume after resection of bowel. We supplied the plasma for that patient and also for numerous others.

In gastrointestinal diseases, biliary dysentery, toxemia, very severe dehydration, where there is no chance of feeding the patient otherwise, we have been able to maintain the protein balance. Certainly in severe cases of chronic ulcerated colitis, we have something that is better than anything that we have had previously.

I was glad to hear Dr. Connell's statement about the red blood cells, which we have been using in a few instances of secondary anemia.

Dr. Katz (In closing): I will simply make one addition, that is, in regard to the usefulness of the red blood cells after the plasma has been aspirated. Dr. Connell mentions that he resuspends the red blood cells in saline and gives it to anemic patients after proper typing and cross matching. We have had no experience with this work. However, we have also made use of red cells in the treatment of secondary anemia. It is our practice to pool the cells and store them in 500 c. c. vacuum bottles. The cells are withdrawn from the bottle and injected intramuscularly with procaine. From present indications it appears that a hematopoietic response is elicited. We are continuing this work and feel that it holds some promise.

PEPTIC ULCERS

WITH SPECIAL REFERENCE TO NON-SYMPTOMATIC TYPE AND CASE REPORTS OF RUPTURE INTO PERITONEAL CAVITY AND INTESTINAL HEMORRHAGE*

W. J. NORFLEET, M. D.
SHREVEPORT

I realize that the phrase "non-symptomatic ulcers" may be considered superfluous by some of the medical profession, and others may even doubt the existence of such a condition; however, to those of us who have been confronted with these conditions they are not only real, but severely test our diagnostic acumen as well as our ability to treat them satisfactorily. Naturally, in presenting this subject it is necessary to understand that there are several variable factors, such as the accuracy of the history, and the individual's response to pain or discomfort, which must be carefully evaluated. Unfortunately at present the presenting symptoms are not those of the classical ulcer syndrome but are complications of peptic ulcer, such as intestinal hemorrhage and hematemesis or melena or perforation with peritonitis. Therefore, to discuss this subject intelligently it is essential to review as many cases of this type as possible which were non-symptomatic prior to the perforation or hemorrhage, and later were proved to be ulcers either by operation, radiologic findings, or autopsy. In reviewing the literature I not only find many conflicting statements but some interesting facts which are worthy of reporting. As yet a great deal is unknown about peptic ulcer, but it is to be hoped that in the future more cases of this type will be reported so that eventually a review of the literature combined with scientific investigation may help explain the occurrence, seasonal variation and many other puzzling questions pertaining to this subject.

INCIDENCE

It is commonly known that peptic ulcers occur in all races, and in all parts of the

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world, but statistics reveal that this disease is more common in certain countries than in others and in certain tropical regions it is rarely encountered. Both sexes are subject to the disease but it is more commonly found in the adult male during the second, third and fourth decades of life than in the females of the same age group. In contrast to this, Denys Jennings¹ studied the statistics of acute perforated ulcers in several countries and races over a period of 150 years and discovered that during the nineteenth century these occurred most frequently in young females. He reports that out of every six cases reviewed, three were in young women below the age of 20 years, one in an elderly woman, one in an elderly male and one in a young male. Also he found that as this century progressed the disease seemed to be on the increase and continued to affect females in about the same proportion, but about the beginning of the twentieth century there was a sudden shift in its incidence, as the disease began to appear more frequently in adult men. The ratio since 1900 has been about six or eight adult males to one woman.

A peptic ulcer may occur as a clinical entity, or may be found as a complication of other diseases. The classic signs, symptoms and even x-ray findings are familiar to all physicians and help establish the diagnosis in a large per cent of the cases, but often there are patients who have neither the usual symptoms, signs nor positive x-ray findings of peptic ulcer and it is this group of persons (though small in number) who are the most perplexing and in whom the condition is often undiagnosed until there is a perforation into the peritoneal cavity or an intestinal hemorrhage. As modern diagnostic methods reveal that most ulcers occur in the duodenum or the vicinity of the pylorus, as would be expected the acute perforated ulcers are located in these areas. Ross and Letourneau² report that out of 228 patients with perforated peptic ulcers who were admitted to the Montreal General Hospital in a fourteen year period, 84 per cent were in the duodenum and the other 16 per cent occurred

either in the pylorus or in the pre-pyloric area of the stomach. Of this series, 91 per cent of the perforations were in the immediate vicinity of the pylorus and there were four patients with double perforation.

Odom and Debakey³ found that out of 2,607 patients with peptic ulcer who were admitted to the Charity Hospital in New Orleans from 1929 to 1938 inclusive, there were 211, or approximately 8 per cent, with acute perforated ulcer. They conclude that over this period of time the general incidence of ulcer increased about one and one-half times and acute perforations have increased about seven times. Of the group, (211 cases) there were 29 patients, or 13.6 per cent, who gave no previous history of gastric distress. Eusterman and Morlock⁴ report that out of 1,089 verified cases with hematemesis or melena there were 17 persons (1.5 per cent) without the least vestige of previous gastric or digestive distress, and another 24 (2.2 per cent) who, upon repeated questioning, revealed only mild or vague histories of gastric disturbances. Therefore, they concluded that in a total of 3.7 per cent of these patients hemorrhage was the first symptom of existing pathology in the duodenum. Thus, considering the facts, first, that only about 8 per cent of peptic ulcers perforate and 13.6 per cent of these are non-symptomatic, and second, that only 20 per cent of duodenal ulcers give rise to gross hemorrhage and that in 3.7 per cent duodenal hemorrhage is the first indication of pathology, there is justification in the assumption that non-symptomatic peptic ulcers are not infrequently encountered and many times are not suspected until autopsy. A review of autopsy statistics verifies this conclusion. Therefore, physicians are confronted with serious gastric or duodenal pathology which does not give rise to symptoms.

PATHOGENESIS

The pathogenesis of peptic ulcers still remains a debatable subject in spite of the numerous theories and hypotheses which have been advanced. Time will not permit a discussion of all these, but there are some which I wish to mention as they may have

considerable influence on the development of this disease. Jennings,¹ after his extensive review of the occurrence of perforated ulcers for many years, came to the conclusion that certain environmental factors and hereditary tendencies which are frequently overlooked play a very important role in the development of peptic ulcers. Also a recent investigation by the Royal College of Physicians of the 1940 British Expeditionary Forces in France seems to show that environmental factors predispose to a recurrence of the disease, as about 92 per cent of men with diagnosed ulcers had symptoms years before enrollment in the army.

For years investigators have successfully produced chronic ulcers in experimental animals, but the results have been questionable for various reasons. DeBailey,⁶ in his series of experimental ulcers, tried to control all possible environmental and dietary elements, and has shown quite conclusively that certain alterations of the usual alkaline duodenal juices will produce chronic peptic ulcer in a large percentage of the operated animals.

Virchow was the first to advance the theory that peptic ulcers resulted from a disturbance of the circulation of the stomach, with infarction and ulceration. This theory has been discussed by many observers for years, some claiming that there was a local spastic disturbance and others that there was a general systemic disease. That the circulatory system is an important factor in the genesis of the peptic ulcer has been demonstrated rather clearly by Boles, Riggs and Griffith⁶ who analyzed 161 autopsy cases in the Philadelphia General Hospital, which showed acute ulceration of the gastric mucosa. These cases were selected from the younger age group, with the average age of 33 years, in order to avoid the chronic vascular changes of elderly people. Some of these ulcers were perforated, others grossly macroscopic and others were microscopic. In some cases there were numerous lesions, in others there were varying stages of development and some areas showed healing of the acute mucosal lesions, but in all cases by differ-

ential staining, they demonstrated a definite disturbance in the deep layers of the musculature. For convenience sake, the cause of death, which was varied, may be divided into four groups; namely, cardiovascular disease, 77 cases; metabolic disturbance, 52 cases; anemia or blood dyscrasia, 14 cases; and cerebral disease, 18 cases. Thus, there was a direct vascular disturbance in the first three instances and a possible vasomotor disturbance in the cerebral cases, and as a general systemic condition was present in all cases, it suggests that the vascular disturbances found in the deeper structures of the stomach and underlying the acute mucosal lesion were a result of a general systemic disease and not a local reaction. As all of the ulcers found in this series were acute lesions, the question may arise whether they were caused by the oral administration of certain irritating medicines or by vomiting or straining, but medicines and vomiting would not produce circulatory disturbance and degenerative changes of the muscular layers of the stomach beneath all of the ulcerations, even under the healed lesion. To prove that similar lesions were present throughout the body, studies were made of other tissues, such as the liver, spleen or brain, and similar areas were found; therefore, it would seem that this condition was due to a general systemic circulatory disturbance and not to any local or focal cause.

In addition to the above, it is possible that certain disturbances of the endocrine glands play important roles in ulcer formation. It is interesting to know that Jennings,¹ in his review which showed acute perforations predominating in young women, found that in no instance was there an acute perforation in a pregnant woman. Also Sandweiss⁷ et al. found that many women who had ulcer symptoms were entirely relieved of all symptoms after becoming pregnant and remained symptom free until delivery. In addition, they demonstrated that in a group of experimental animals in which alkaline duodenal juices were diverted from the usual course by operative procedures, administration of the

anterior pituitary-like hormone prevented the formation of ulcers. Wolfe⁸ in his textbook on endocrine disturbances, devotes several pages to the discussion of certain endocrine disturbances and their possible role in formation of peptic ulcers.

CASE NO. 1

R. J., aged 16 years, school boy, had a past history which was unimportant except for childhood diseases. He had exemplary habits, did not use alcoholic drinks nor tobacco. Since early childhood the diet was closely supervised by parents and only most nourishing foods were taken. Previous to onset of present illness he was in perfect health; took part in normal school activities. On March 5, 1937, the patient attended school as usual, had a light lunch at 12:30, and at 3:30 p. m., while riding in an automobile from school, was stricken with intense abdominal pain. When examined first at four o'clock in the afternoon, thirty minutes after the onset, he was found to be a normal male, well developed and muscular; temperature normal, pulse rate slightly accelerated; heart and lungs were normal; abdomen flat with slight rigidity. The pain apparently was all over the abdomen. He was moved to the hospital and examination of the blood showed 19,500 white cells, 86 per cent polymorphonuclears and 14 per cent small lymphocytes. The urine was negative. At 5:30 the abdomen was more rigid. When the abdomen was opened the appendix was acutely inflamed and a ruptured ulcer on the anterior surface of the pyloric ring was found and closed. Patient made an uneventful recovery and since has had no signs or symptoms of returning ulceration.

CASE NO. 2

J. B. E., aged 55 years, business executive, had the following past history: For years the patient had an essential hypertension which had caused little or no inconvenience. Repeated examinations failed to reveal any evidence of disease; however, about six or eight months before the onset of last illness he began to show some evidence of myocardial degeneration and was kept on a very strict diet and often spent considerable time resting in bed. His business activities were curtailed and he used alcoholic drinks sparingly, but continued to smoke excessively. A few months before the onset of the last illness he was examined at Scott and White Clinic and nothing was found except the hypertension with myocardial degeneration. On December 20, 1938, patient was put to bed with attending nurses because of dizziness and increase in blood pressure. For the next few days he ate sparingly and was very comfortable. Early on the morning of December 30, 1938, after having taken practically nothing to eat the previous night, he was awakened with intense pain in the upper abdomen. When examined at 5 a. m.

the pain seemed to be the result of gas in the colon and an enema, and hypodermic of luminal gave him relief, but at 7:30 a. m. the pain returned and was much more severe. At this time there was beginning rigidity of the abdominal muscles and patient was moved to the hospital where a blood examination showed 14,000 leukocytes with 86 per cent polymorphonuclears and 14 per cent lymphocytes. Blood Wassermann and blood chemistry were normal, as well as kidney function. X-ray examination showed free air under the diaphragm. A few hours later a laparotomy was done and a perforated ulcer on the first portion of the duodenum was found and closed. For a few days the patient made satisfactory progress but after 72 hours there was a definite myocardial weakness which progressed until death.

CASE NO. 3

P. G., aged 30, was an electrician who complained of being unable to concentrate and dizziness. He gave a history of having a primary lesion five years before examination, otherwise the past history was negative. The physical examination revealed little of importance except some loss of weight. Blood Wassermann was four plus. Spinal fluid examination showed increased pressure, cell count 26, globulin increase with four plus Wassermann. He was given intensive antiluetic treatment over a period of four years, with short periods of rest. During the last year it was noted that following injection of either arsenical or bismuth preparations there was marked capillary dilatation of the face and exposed surfaces, but his general condition was good and he continued to work as an electrician. There were no complaints of gastric distress. In October, 1940, while working in a nearby town, he was suddenly seized with severe epigastric pain in the night and few hours later a laparotomy revealed a ruptured ulcer in the pyloric end of the stomach on the anterior surface, which was closed and patient made an uneventful recovery.

CONCLUSIONS

From the foregoing discussion and case reports it will be noted that non-symptomatic types of peptic ulcers are not uncommon. The first patient, a young student apparently in excellent physical condition, developed this condition which ruptured before there were any symptoms to indicate its present. Other patients each had circulatory disturbances and cerebral involvement which preceded the present condition. Peptic ulcers may occur as clinical entities or as complications of other diseases; therefore, this type of condition offers serious complications to all members of the medical profession, regardless of

their specialties. At present from the evidence it seems as if certain types of conditions such as circulatory disturbances, cerebral diseases, metabolic diseases, blood dyscrasias and perhaps certain endocrine disturbances are particularly prone to play important roles in the formation of these ulcers.

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DISCUSSION

Dr. J. E. Knighton (Shreveport): Dr. Norfleet has pointed out some most interesting things in the discussion of this subject. In his general discussion of the subject I think it was most interesting to note that during the 19th century records indicate that the problem of peptic ulcer was more common in women. Since that time, it is a well recognized fact that men are much more frequently victims of peptic ulcer. It may be that prior to the 20th century, we might recall from historic records, women were essentially the burden bearers, but as time has advanced men have borne more of the hardships of life and develop more peptic ulcer symptoms and conditions.

I think these cases that Dr. Norfleet presented are rather interesting. Of course, it is hard to understand why the young patient should have developed an ulcer. At least, it is hard to understand any background that might predispose to ulcer in his case. However, in the other cases there are conditions, just as he has suggested, so frequently associated with these tragedies in connection with peptic ulcer. Take, for instance, the hypertensive case, the arteriosclerotic patient, no doubt there were circulatory conditions that might predispose to the ulcer. But why they should not have presented symptoms is hard to understand. I can recall numerous cases, as I am sure you can, with severe hemorrhages in patients who did not give a history of digestive disturbances prior to the onset of hemorrhage. And I can recall, also,

cases that after the hemorrhage had subsided and the patient passed over enough time that you would feel safe in having x-ray examinations, yet the x-ray would fail to show any indications of the ulcer. I am sure all have observed that. Of course, hemorrhage does not always have to come from an ulcer. The patient might have esophageal varices, or something else that would produce hemorrhage.

In a general way, I believe a good many of the patients who deny any history of digestive disturbances may really have had symptoms. You know there are a great many people who think everybody has indigestion. They think that is normal. You may ask them if they have had any stomach trouble. But as a matter of fact a great many people have had the ordinary milder digestive disturbances which they think are normal; they do not think of that as being abnormal, but they think everybody has those same symptoms.

Dr. Ernest H. Gaither (Baltimore): We have all had this experience with asymptomatic ulcer, wherein you witness the catastrophe of a perforation or hemorrhage without a history of any previous symptoms of ulceration. In these cases the condition at times is entirely missed. There is a great deal of truth in what Dr. Knighton said, that if you inquire carefully into the history in quite a few patients you will find that they have had dyspeptic symptoms, not necessarily harrowing pains, but simply what the patient thinks is normal in the way of mild, dyspeptic symptoms such as fullness, distress and discomfort, going on for probably a number of years. I have seen a large number of cases of perforation and of hemorrhage wherein these complications were the first manifestations of a pathologic lesion in the digestive tract. The latest case was a few weeks ago. This was a very intelligent man, and I think you can depend pretty well on the history. He was 47 years of age, a metallurgical engineer. He was in the central part of the business section when, as he explained, the next thing he knew he was in bed at a hospital. Well, the history was that he fell into the door of a store with a severe hemothorax. That man assured me that he had never experienced the slightest evidence of any dyspeptic symptoms before the catastrophe occurred. Students ask you, "Why do these patients go along for years with peptic ulcers and yet never have dyspeptic symptoms?" The answer is simply that there is no explanation. How can you explain that any more than the large number of individuals who come to autopsy with gallbladder pathology, with stones? And yet, we can inquire and we find that patients who had no evidence of dyspeptic symptoms and no recent attack are endeavoring to keep from you the history of previous dyspeptic symptoms. I think the subject is of overwhelming importance because with individuals who have never had dyspeptic symptoms and who have a

perforation, the true state of affairs may not be suspected unless one possesses the knowledge which Dr. Norfleet has so graphically presented to us in his splendid essay.

Dr. D. N. Silverman (New Orleans): Since we cannot anticipate the horrible catastrophes that follow non-symptomatic ulcer, then we must contend with the complications. Hemorrhage and perforation do not hold the terrifying possibilities that they formerly did. And now, I come to the subject in which I have been interested for the last year, namely, the employment of blood plasma. It is immediately available for the treatment of perforation and hemorrhage, both of which put the patient in severe shock and cause early death. It was said that hemorrhage which continued for forty-eight hours was usually fatal. A few years ago, I published a paper in which I reported the use of continuous drip transfusion of whole blood to maintain blood pressure and blood volume, preventing the collapse and death of the patient. This whole blood caused severe reactions and serious symptoms, such as edema of the lungs. At the present time, when a patient has hemorrhage or perforation, in a few minutes you can reach into the reservoir of blood banks, which should be present in all hospitals, small and large, and give the patient sufficient fluid to maintain blood volume until nature is able to take care of the hemorrhagic area and the shock which the patient immediately goes into on perforation. The use of large or massive doses of blood has been shown by Marriott to be of little avail, because the rise of blood pressure is slight and at best only temporary. We need to pay no attention to the anemia or loss of the red cells in hemorrhage because it is the blood volume which counts. The patients are unable to nourish for days or long periods of time, and with the use of blood plasma we have a substance which maintains the fluid balance, the water remaining in the blood vessels, rather than having it extravasate into the surrounding tissues, and the necessary nutrition maintained, as I have just mentioned.

This is simply an appeal for the wider use of blood plasma and for its early employment in these acute cases of hemorrhage and shock.

Dr. W. J. Norfleet (In closing): The subject of peptic ulcer has always and still continues to be interesting to me and perhaps with the changing economic and world conditions, the disease will be more frequently encountered. I am particularly anxious to see what effect, if any, the present mobilization of the armed forces will have upon the incidence or frequency of this disease, and, as I will be assigned to active duty in the La Garde General Hospital, probably I will have an opportunity to study this phase of the subject more intensely.

INFLUENZAL MENINGITIS

THE SUCCESSFUL TREATMENT OF A CASE IN AN INFANT

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AND

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NEW ORLEANS

The recovery from influenzal meningitis in infancy is extremely uncommon. In the records of the New Orleans Charity Hospital for the past five years there have been 57 cases of proved influenzal meningitis with two recoveries. Of these cases 45 occurred in children under the age of three years, and in this group there have been no recoveries with the exception of the case being reported. It is this relatively frequent occurrence of influenzal meningitis in young children and the extremely high mortality in this age group which prompts us to report this case with apparent complete recovery.

CASE REPORT

The patient, a white male infant of eleven months, was brought to the New Orleans Charity Hospital on November 6, 1940. He had been having chills with fever to 103° F. for four days and had also had some vomiting. For two weeks prior to this acute illness he had had a cold. The child's mother noticed that the baby had kept its head "drawn back" for three days. On the day of admission the child had first been taken to a local hospital where a spinal puncture was done. The fluid was found to be turbid and the smear showed organisms which were believed to be gram-negative diplococci. Because the hospital lacked a contagious unit, the child was referred to the Charity Hospital in New Orleans as a case of meningococcal meningitis.

The past medical and family histories contained nothing of importance in relation to the illness. The patient had been breast-fed since birth. He had also been given cod-liver oil, orange juice and pureed foods. He had never been a healthy baby, having had frequent colds and attacks of diarrhea. He had had no childhood diseases.

Examination revealed an acutely ill, undernourished male infant of eleven months of age. Temperature was 102° F., pulse 140, respiration 32. The child, although appearing drowsy, was very restless, whimpering and moving his arms and legs

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†From the Department of Medicine, School of Medicine, Tulane University of Louisiana.

about constantly. The neck was stiff and the child showed some opisthotonus. Kernig's and Brudzinski's signs were not present. The reflexes were within normal limits. The pupils were equal and reacted to light. The pharynx was slightly injected. The tympanic membranes were not inflamed. The heart and lungs were clinically negative.

On admission the white cell count was 12,250 with 88 per cent polymorphonuclear neutrophils. The urine was negative. Spinal puncture was repeated and revealed cloudy fluid under a pressure of 260 mm. of water. The dynamics were normal. A smear made from the spinal fluid showed gram-negative organisms of questionable morphology and for this reason, after a negative skin test, the child was given 10,000 units of meningococcal antitoxin intramuscularly. The following day the smear was reported by the pathology department as unquestionably showing influenza bacilli. Culture confirmed this report.

The patient was immediately put upon sulfapyridine in 10 grain doses at four hour intervals, the dose being calculated at 4 grains per pound of body weight per day. After three days this dose was diminished by half. After one week, oral administration was discontinued because of vomiting and the failure to produce a high blood level of the drug. The child was then given two clyses daily of 200 c. c. of 0.5 per cent sodium sulfapyridine monohydrate in normal saline. These clyses were continued until convalescence was well under way. Spinal fluid levels of the drug ranged between 2.2 and 7.0 mg. per cent.

Spinal punctures were done twice daily and as much fluid removed as would drain freely. Two-thirds of the amount of fluid removed each time was replaced by anti-influenza bacillus serum, which was allowed to run into the spinal canal by gravity. The remainder of the 30 c. c. ampule was then given intramuscularly. Transfusions of 100 c. c. each of citrated blood were given at four to five day intervals.

During the first three days of treatment the patient showed a downhill course. The neck became more rigid, vomiting was frequent and the child was extremely restless. Temperature ranged between 99° F. and 102° F. At the end of the first week the baby showed considerable improvement, the neck was only slightly stiff and he was able to sit up and play. The spinal fluid appeared clear, two sterile cultures were obtained and the cell count fell to 20 per cu. mm.

On the tenth day after admission the child developed a generalized urticarial rash over the entire body, and the temperature, which had not

exceeded 100.6° F. for several days, rose to 102° F. The rash was believed to be a serum reaction. Because of the doubtful value of serum in these cases and the large amount the child had already received, serum was discontinued, daily spinal taps being done for drainage only.

Within the next week, the patient's original symptoms and signs reappeared. The spinal fluid became hazy, cell count rose to 640 per cu. mm. and cultures were again positive for *Hemophilus influenzae*. Serum therapy was reconsidered in spite of the risk entailed. At this time it was decided to attempt to enhance the value of the serum with fresh adult serum to provide complement, according to the method of Ward and Fothergill¹ and Fothergill.^{2,3} A skin test revealed a two plus positive reaction to the serum. Serum was given in desensitizing doses until 20 c. c. had been given intramuscularly. Following the daily spinal punctures, the fluid removed was replaced by 15 c. c. of influenza serum and 5 to 8 c. c. of fresh human adult serum. The child at no time experienced any untoward effects from these procedures.

The patient improved steadily, the spinal fluid again became clear and cultures were sterile. The child was afebrile within three days and remained so until his discharge one month later, with the exception of one evening rise to 101° F. After four negative cultures the spinal fluid showed a positive growth for two days, unaccompanied by any clinical manifestations. The cultures were then sterile and the cell count less than ten the remainder of his hospital stay.

Sulfapyridine clyses were reduced to one daily on the thirty-fifth hospital day and all therapy was stopped on the fortieth. The child was discharged on the fifty-second hospital day apparently quite well.

Communications from the patient's mother within the following five months state that the child has been in good health in the interim. He walked at fourteen months and at the present age of seventeen months is able to say numerous words.

CONCLUSION

A case of influenzal meningitis in an infant with apparent complete recovery is presented. The patient was treated extensively with sulfapyridine and influenzal antiserum. He received a total of 60.5 grams of sulfapyridine, 36.5 grams of which were given subcutaneously. Forty-eight spinal punctures were done and 1108 c. c. of spinal fluid removed. Two hundred and sixty five c. c. serum were administered intrathecally and 195 c. c. intramuscularly. Five hundred and twenty c. c. of blood, as transfusions, were given. In spite of the extensive serum

and chemotherapy, the urine and blood picture at no time showed any abnormalities.

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ANOMALOUS VEIN ENCROACHING ON THE FIFTH LUMBAR ROOT AS A CAUSE OF SCIATIC PAIN

A CASE REPORT*

IRVING REDLER, M. D.†
AND
GILBERT C. ANDERSON, M. D.†
NEW ORLEANS

Intraspinal lesions as a possible cause of sciatic pain have been intensively studied during recent years and their clinical, neurologic and radiologic characteristics are now well established. The great majority consist of herniations of the nucleus pulposus, often associated with hypertrophy of the ligamentum flavum. Hypertrophy of the ligamenta flava unaccompanied by other lesions, and spinal cord tumors are less frequent causes. Still more infrequent causes are varicosities or the presence of anomalous veins about the nerve roots. For this reason there seems justification for the presentation of the following case report, in which an anomalous vein, probably arising from the anterior epidural vein, was the cause of the syndrome.

CASE REPORT

Mrs. N. K., a white female, 28 years of age, entered the orthopedic outpatient dispensary of Charity Hospital of Louisiana at New Orleans August 28, 1940, complaining of pain in the lower back which radiated down the left thigh and which had been present for about six months. In February, 1940, the patient had slipped on the floor and had injured her right ankle and back. Almost a week after the fall the pain in the lower back,

which had followed the injury immediately, began to radiate down the posterior aspect of the thigh as far as the popliteal region. Still later it radiated down the antero-lateral aspect of the leg to the foot. It became increasingly severe with the passage of time, assuming a continuous, aching character and being aggravated by sitting, bending, coughing and sneezing. Rest in bed, strapping, and the use of a corset failed to give relief. Some three months after the original injury the patient noted an awkwardness of the left leg, particularly when she danced, and eventually the leg felt heavy and as if it had to be dragged.

Physical examination revealed a well developed, slightly obese white woman, in apparently good health. The general examination was negative. When the patient stood upright a slight list of the trunk to the left was evident. There was no spasm of the erector spinae muscles, and no appreciable atrophy of the thigh or leg was observed. Lasegue's sign was markedly positive on the left. There was local tenderness about the left sacroiliac joint and along the course of the sciatic nerve. The patellar and Achilles reflexes were present, equal and active on both sides. A small area of anesthesia to pin prick was present over the middle third of the antero-lateral aspect of the left leg.

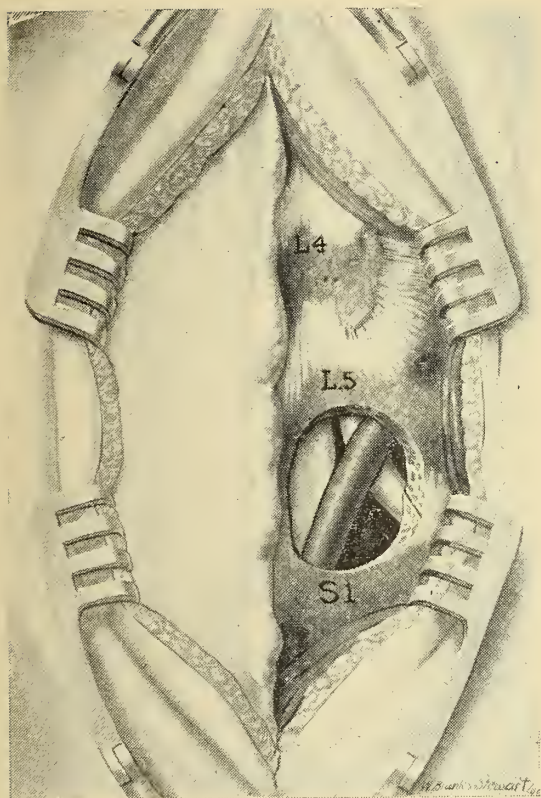
Urinalysis and blood Wassermann reaction were negative. Roentgenologic examination of the lumbosacral spine failed to disclose any abnormality to account for the patient's complaints.

Neurosurgical consultation was requested September 11, and the patient was advised to enter the hospital for myelographic studies and possible laminectomy. Fluoroscopy, after the intraspinal injection of 5 c. c. of lipiodol at the third lumbar interspace, revealed free movement of the column of opaque material in the spinal canal, and no evidence of a filling defect. The films taken following the fluoroscopic examination also revealed no abnormalities.

Despite the negative results of these studies, laminectomy was carried out October 9, on the basis of the persistent severe symptoms and the positive neurologic findings. Portions of the fifth lumbar and first sacral laminae were removed under general anesthesia, the neural arches being left intact. After the ligamentum flavum, which was of normal thickness, had been removed, the exposed dura was retracted and the fifth lumbar root was exposed. The root itself appeared normal, but overlying it was a large anomalous vein, about 3 cm. in diameter. This vein was isolated, ligated, and excised, and several smaller veins about the root were coagulated. The root was not sectioned. No herniation of the nucleus could be found. The dura was opened and the lipiodol removed by suction and drainage, after which intradural inspection of the root showed it to be normal. The dura was sutured and the wound closed in

*Read before the Orleans Parish Medical Society, March 24, 1941.

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layers. External immobilization was not considered necessary.

The postoperative course was uneventful except for transitory anuria and paraesthesia of the lower extremities. The patient was symptom-free when she left the hospital November 8, 1940. When she was examined in the outpatient dispensary January 16, 1941, she had no pain or disability and had resumed all her previous activities.

COMMENT

A survey of the literature confirms the infrequency of anomalous veins and varicosities as the cause of sciatic pain. Varicosities were found in only four of the 203 laminectomies performed at The Mayo Clinic¹ on the diagnosis of herniation of the nucleus pulposus, and Bradford and Spurling² reported only one instance in 60 consecutive laminectomies performed on the same diagnosis; in the latter instance a plexus of veins surrounded the root sleeves of the first and second sacral nerves on the affected side. Ramirez Corria³ described a similar case in which myelograms revealed a bilateral filling defect opposite the intervertebral disk between the fourth and fifth lumbar vertebrae. At operation bila-

teral varicosities, which apparently arose from the anterior epidural venous plexus, were found compressing both fifth lumbar roots medially. Coagulation of the lesion resulted in complete recovery.

A case reported by Mixer,⁴ in which an anomalous vein was found, is almost identical with the case reported in this communication. A white male, 28 years of age, was suddenly seized with low back pain following a violent coughing effort. For two years thereafter he had severe attacks of sciatic pain associated with subsequent paraesthesia in the affected region. Neurologic and myelographic studies were negative. Exploratory laminectomy from the first to the fifth lumbar vertebrae was performed in an effort to relieve the pain. A large vein was found lying on the left posterior aspect of the cauda, apparently following the course of the fifth root. It was isolated, divided between ligatures, and removed, and the relief obtained immediately proved permanent.

SUMMARY

A case is reported in which intractable sciatic pain, resembling the clinical picture of herniation of the nucleus pulposus, was caused by a large anomalous vein encroaching upon the fifth lumbar root. Myelographic studies with lipiodol had failed to reveal evidence of an intraspinal lesion and the diagnosis was made at operation. Removal of the vein was followed by complete recovery. A similar case reported by Mixer makes clear that this lesion, although rare, can be responsible for sciatic pain, and that symptomatic relief can be anticipated following its removal.

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DISCUSSION

Dr. Anderson: I think this case illustrates the fact that we are coming more and more to consider sciatica or sciatic neuritis, or what you please to call it, as a syndrome indicative of some underlying pathology rather than as a clinical entity in itself. There may be some cases that are primarily and purely idiopathic but I believe in the vast majority of cases we would be able to find some factor which would be readily demonstrable as the cause of these pains, if they could be studied to their ultimate conclusion.

In this particular case, as the doctor brought out, we were more or less at a loss to understand why these symptoms were present and I must say that, in my limited experience, I have not been able to demonstrate a rupture in the presence of a definitely negative myelogram such as he had here; however, we were so thoroughly convinced this woman had a ruptured disk that we had the study repeated and even after the second report, which was again negative, we were willing to explore her,

after having explained the possibility of a perfectly negative exploration. We found an anomalous vein overlying the root and apparently compressing it and although it is not readily explainable, how or why such compression would be responsible for her symptoms, they were relieved following the section of this vessel.

As stated, it is very similar to the condition reported by Mixer who also said it was very difficult for him to explain why that particular vessel caused that syndrome which disappeared after removal of the vessel. Where that vein came from, is hard to say. As brought out, it may have become intradural higher up. We had only a short portion of the vessel exposed and it was difficult to get the ligatures around it; between which it was severed and removed.

When a patient is relieved after operation, most surgeons are willing to rest on their laurels. It has been some time since this operation; there has been no recurrence and I have no reason to think there will be.

LARGE SOLITARY ABSCESS OF THE KIDNEY*

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AND

MERVIN E. FATTER, M. D.‡

NEW ORLEANS

The numerous articles on acute staphylococcal infections of the kidney, that have appeared in the medical literature in recent years, give evidence that the medical profession is coming more readily to recognize the clinical picture presented by the various types of coccal renal infections which develop in the cortex of previously healthy kidneys.

The clinical picture is totally different from that presented by bacillary infections. In the coccal infections, the urine is almost always macroscopically clear and negative, although microscopic examination of the urine may reveal some red blood cells, a few pus cells and an occasional cocci, whereas in the bacillary infections examination of the urine always reveals pyuria and bacilli.

While solitary abscess of the renal parenchyma is not often seen and probably less often recognized, however, there have been reported a comparatively large number of multiple cortical abscesses and carbuncles of the kidney, similar lesions having in all probability etiologic factors identical with those of the solitary abscess.

This case of solitary kidney abscess was thought to be sufficiently interesting to report not only because very few have apparently been recognized preoperatively but also because it presents rather interesting pyelographic demonstrations of diagnostic importance, and of the rapidity with which a diseased kidney may resolve following operation.

CASE REPORT

A white female, single, 20 years of age, entered the urologic service of the Independent Unit of Charity Hospital on May 16, 1940. She complained chiefly of pain in the right loin and fever which began 10 days before admission to hospital. She appeared acutely ill. The patient gave a history of having had boils nine months previous to admission. Physical examination disclosed rather marked tenderness on right side of upper abdomen below costal margin. No definite mass could be palpated. There was slight tenderness in the right costo-vertebral region. Palpation in the left loin disclosed no abnormalities. The urine was negative for albumin and sugar but showed occasional white blood cells, and no red blood cells. The stained

*Read before the scientific meeting of the Orleans Parish Medical Society, January 27, 1941.

†From the Independent Unit of Charity Hospital of Louisiana at New Orleans, Urological Service of Dr. Henry J. Lindner and Staff.

smear was negative for organisms. Culture of urine showed *Esch. coli*. Wassermann was negative.

Her temperature on admission was 102° F., white blood cells 17,700 with 81 per cent polymorphonuclears, red blood cells 3,960,000; hemoglobin 80 per cent. Four days after admission the patient was cystoscoped and the bladder found to be apparently negative. Ureteral catheters passed to both kidneys with ease. The urine specimens from the bladder and both kidneys showed smears and cultures negative. Indigo carmine injected appeared in three minutes with good concentration from both kidneys. Pyelograms of right kidney at this time were not satisfactory from a diagnostic viewpoint. A tentative diagnosis of abscess of the kidney was made at this time.

Serologic agglutinations were negative for typhoid, paratyphoid and undulant fever. As the patient's condition did not appear to be as acute as on admission, it was determined to treat her symptomatically with armed watchfulness.

Ten days after admission the temperature was 102.4° F., with a white blood count of 19,200. There was a definite mass in the right upper quadrant of abdomen. Pyelogram, retrograde, of right kidney showed definite separation of calices and flattening of the kidney pelvis. At this time, a diagnosis of associated perinephric abscess was

made and it was decided to operate and explore the right renal region without further delay. This was done by means of the usual oblique kidney incision. The perirenal tissues anteriorly were found to be thickened and pale and adherent to the anterior surface of kidney. No free pus was found anywhere. However, on freeing the anterior surface of the kidney from the thickened, inflammatory perirenal tissue, a point was reached about the mid-portion of the anterior surface of the kidney that was more adherent to perirenal tissues. When this was freed by gauze dissection a large amount of pus was seen to come from the opening in the perirenal tissue. A hemostat was inserted into this opening and opening enlarged, whereupon about four ounces of pus were evacuated. Material was taken for culture. The anterior surface of kidney showed collapsed wall over abscess crater which could be palpated. What happened here was this, the kidney abscess perforated the renal capsule and emptied its contents into the perirenal tissue. Digital exploration of opening in perirenal tissue revealed a completely walled off cavity.

A small soft rubber catheter was placed in abscess cavity in perirenal tissue and two cigarette drains were inserted down to kidney abscess opening, after which the wound was closed in layers.

The patient's temperature became normal the sixteenth postoperative day and remained so until discharged from the hospital twenty-nine days after the operation.

Before leaving the hospital the patient was cystoscoped and the urine found to be clear and negative to cultures. Indigo carmine test appeared

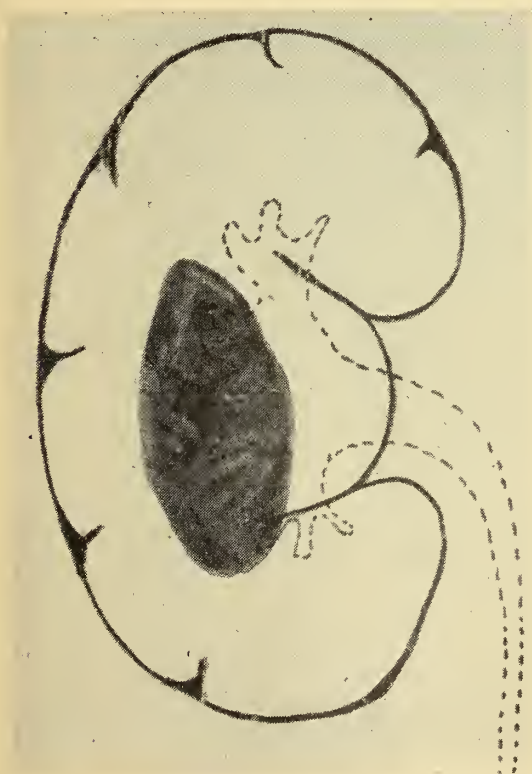


Fig. 1. Approximate position and comparative size of abscess of right kidney.



Fig. 2. Right pyelogram showing marked compression of renal pelvis and separation of calices.

in three minutes with good concentration. Retrograde pyelogram showed apparently normal renal pelvis and demonstrates the seeming rapidity with which a diseased kidney may resolve following operation. Culture of the pus obtained at the time of operation showed *Staphylococcus aureus*.

We had the opportunity again to see the patient six months after operation. She was in excellent health and had gained weight.

ETIOLOGY

The *Staphylococcus aureus* is the most frequent invading organism, although any of the other staphylococcal strains may be and have been responsible. The portal of entry for the invader is usually the skin. In most instances the patients give a history of having had some pre-existing lesion such as boils or other type of skin infection. However, upper respiratory infections, paronychia, infected wounds and osteomyelitis may be the primary factor.

SYMPTOMS

The characteristic symptoms of this disease are a rise in temperature with or without chill, with pain in the lumbar region. The kidney usually cannot be felt. There is a definite jar tenderness over the involved kidney. Leukocytosis is always present. Examination of the urine may show little or nothing. There may be some red blood

cells in the urine, some leukocytes or a trace of albumin as a result of the febrile reaction, possibly from the affected kidney, possibly from the other kidney. The functional tests of the kidney and blood examination for retention products are most likely to be negative. The value of cystoscopy is to demonstrate that both ureters are patent and that the patient is not suffering from a blocked kidney.

Urography may demonstrate a pushing apart of the calices above and below the abscess and a compression or flattening of the kidney pelvis.

Thus, a negative urine together with the signs and symptoms indicating renal involvement and a history of a pre-existing skin lesion should make one suspicious as to the true state of affairs. Of considerable aid, however, is the pyelogram. One looks chiefly for pressure signs such as compression of the pelvis, unusual separation of the calices or displacement of a single calix.

TREATMENT

The treatment of large solitary abscess of the kidney is incision and drainage.

SUMMARY

A large solitary abscess of the kidney is comparatively rare and not often diagnosed preoperatively. We have reported a case in which the pre- and postoperative pyelograms are interesting and significant both from the standpoint of diagnosis and the rapidity with which a diseased kidney may resolve after operation.

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Fig. 3. Right pyelogram, three weeks after operation, showing apparently normal renal pelvis and calices.

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MEDICAL PREPAREDNESS

During the past several months the entire medical profession of the state, those members as well as non-members of organized medicine, has received a questionnaire sent by the Committee on Medical Preparedness for Louisiana, Dr. C. Grenes Cole, Chairman. This questionnaire was sent out in cooperation with the National Committee on Medical Preparedness, and the offices of the Surgeon Generals of the Army and Navy. The questionnaire is not

very lengthy nor detailed, and requires only a few minutes to fill out. The information is of great importance in the attempt to organize the profession of the state for any national emergency.

The response has been quite satisfactory, but there are yet many questionnaires that have not been returned. The committee is anxious to have a complete return and asks that all physicians who have not returned the questionnaire do so at their earliest convenience. If the form has been misplaced, write to the Committee on Medical Preparedness, Room 105, 1430 Tulane Avenue, for another copy. Your cooperation in this matter will be greatly appreciated and you will be demonstrating again your willingness to support all matters of national defense and preparedness. Parish organizations are urged to bring the matter to the attention of their members and emphasize its importance. The committee will appreciate all the cooperation furnished it.

CORONARY AND GALLBLADDER DISEASE

The association and apparent relationship between coronary disease and gallbladder disease has long been known and frequently discussed and investigated. Walsh, Bland, Taquini and White* discuss the problem and the results of their investigations, both clinically and at post mortem. They found 6.8 per cent of 1,000 private patients with coronary disease to have clear evidence of gallbladder disease, and 2.7 per cent more to have peptic ulcer.

Upon examining 2,737 autopsies on persons 20 years of age or older, there were 21 per cent classified as having coronary atherosclerosis (576 patients). There were 456 patients (16 per cent) with abnormal gallbladders and 122 cases (4 per cent) where coronary disease and gallbladder

*Walsh, Bernard J.; Bland, Edward F.; Taquini, Alberto C.; and White, Paul D.: The association of gallbladder disease and of peptic ulcer with coronary disease; a postmortem study, *Am. Heart J.*, 21: 689, 1941.

pathology existed together. In 149 cases (5 per cent) there was definite peptic ulcer.

Gallbladder disease occurred in women (22 per cent) more often than in men (12 per cent). The reverse was true as regards coronary disease, with 37 per cent of males and 24 per cent of the females.

In analyzing and summarizing the results, the authors state that they are in agreement with previous workers who were unable to find that gallbladder and coronary artery disease are closely related, except through the occurrence of an unknown "aging factor." They re-emphasize the clinical truth that a diseased gallbladder or a peptic ulcer may definitely disturb cardiac function, and the cardiac condition may be markedly improved by the removal or correction of a diseased gallbladder or a peptic ulcer. However, disturbed functions in other organs may act in like manner, but disease of the gallbladder and upper gastrointestinal tract have a more profound effect.

The authors conclude that gallbladder disease occurred twice as often in patients with coronary disease as in those with normal arteries; that there was no indication of a significant association of peptic ulcer and coronary disease in the same person; and that the association of coronary and gallbladder disease was due, in part at least, to an unknown "aging factor."

SULFAPYRIDINE AND THE BARBITURATES

There has been some discussion and concern over the possible harmful effects of the combination of sulfapyridine and the barbiturates in the treatment of pneumonia. Many clinicians have hesitated to use these sedative drugs in patients with pneumonia being treated with sulfapyridine. This hesitancy was prompted or increased by the report of Adriani of experiments on rats, showing that the administration of sulfanilamide rendered the rats highly sensitive to barbiturates.

King and Moersch* reviewed 18 cases in which barbiturates in the usual doses had been used as sedatives in conjunction with sulfapyridine. The most frequently used barbiturate was pentobarbital sodium. Only one instance of any ill effect of the combination was found. Even in this case the prolonged hypnosis which resulted could not be definitely proved to be due to any unfavorable reaction of the drugs. The authors conclude that ordinary doses of the barbiturates may be used with safety in patients receiving sulfapyridine or sulfanilamide.

These conclusions are in agreement with the experience of many men who have used sodium phenobarbital, pentobarbital sodium and other barbiturates for sedation, hypnosis and in an attempt to control the nausea often produced by the sulfonamides in the treatment of pneumonia.

MORTALITY RATES

It is interesting to study and reflect upon the information concerning mortality rates among the American people as set forth in the Statistical Bulletin of one of the large life insurance companies†. The record shows that from the first six months of 1941 at least seven causes of death seem likely to establish new minimum rates. These are scarlet fever, diphtheria, pneumonia, tuberculosis, diarrhea and enteritis, appendicitis, and puerperal diseases. What is even more surprising and encouraging is that diabetes, cerebral hemorrhage, and chronic heart disease also seem likely to set new low records.

On the other hand, deaths from motor accidents have increased 26.1 per cent. Each month of 1941 the rate has increased over the same month of 1940. Canada shows the same increase, though the total is smaller.

*King, William L. M., and Moersch, Herman J.: The combined effects of sulfapyridine and the barbiturates in the treatment of pneumonia, *J. Lab. & Clin. Med.*, 26: 793, 1941.

†Statistical Bull. Metropolitan Life Ins. Co., 22: 5, 1941.

TRANSACTIONS OF ORLEANS PARISH MEDICAL SOCIETY

CALENDAR

- October 1. Clinico-pathologic Conference, Charity Hospital Morgue Amphitheater, 1:30 p. m.
Hutchinson Memorial Clinic Staff, 8 p. m.
Mercy Hospital Staff, 8 p. m.
- October 2. Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.
- October 6. Orleans Parish Medical Society Board of Directors, 8 p. m.
- October 7. Eye, Ear, Nose and Throat Hospital Staff, 8 p. m.
- October 8. Clinico-pathologic Conference, Charity Hospital Morgue Amphitheater, 1:30 p. m.
Touro Infirmary Staff, 8 p. m.
Woman's Auxiliary, Orleans Parish Medical Society, Orleans Club, 3 p. m.
- October 9. New Orleans Hospital Council.
- October 13. Orleans Parish Medical Society, Scientific and Third Quarterly Executive Meeting, 8 p. m.
- October 14. Eye, Ear, Nose and Throat Society, 8 p. m.
- October 15. Clinico-pathologic Conference, Charity Hospital Morgue Amphitheater, 1:30 p. m.
Charity Hospital Surgical Staff, 8 p. m.
Clinico-pathologic Conference, Hotel Dieu, 8:15 p. m.
The New Orleans Tuberculosis Hospital Staff, 8 p. m.
- October 16. Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.
- October 17. I. C. R. R. Hospital Staff, 12 noon.
New Orleans Dispensary for Women and Children Staff, 8 p. m.
- October 20. Hotel Dieu Staff, 8 p. m.
Clinico-pathologic Conference, Baptist Hospital, 8 p. m.
- October 21. Charity Hospital Medical Staff, 8 p. m.
- October 22. Clinico-pathologic Conference, Charity Hospital Morgue Amphitheater, 1:30 p. m.
French Hospital Staff, 8 p. m.
Catholic Physicians' Guild, 8 p. m.
- October 23. Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.
- October 28. Baptist Hospital Staff, 8 p. m.
- October 29. Clinico-pathologic Conference, Charity Hospital Morgue Amphitheater, 1:30 p. m.

- October 30. Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.
- October 31. L. S. U. Faculty Club, 8 p. m.

SCIENTIFIC MEETINGS RESUMED IN OCTOBER

The Scientific Essays Committee announces that plans have been formulated for the fall programs, the first meeting to be held Monday, October 13. The meetings will include, as they have in the past, interesting case reports and appropriate unrelated subjects or symposia.

NEWS ITEMS

Dr. Charles J. Bloom taught at the Southern Pediatric Seminar in Saluda, North Carolina, July 21-August 2. Dr. Bloom addressed the Tangipahoa Parish Medical Society on "Recent Advances in Pediatrics" at a meeting of this Society held August 21 at Hammond.

Dr. Julian Graubarth was recently appointed by the American Academy of Pediatrics as state chairman for Louisiana. Dr. Graubarth addressed the Southeastern Medical Society of Alabama at Thomasville.

Dr. M. J. Magruder discussed the civic accomplishments of the Gordon sisters at the recent annual service of the Kate M. Gordon Memorial Association.

Dr. Joseph C. Menendez was recently appointed Director of Civilian Defense in the Fourth Corps Area.

Dr. W. A. Wagner won the thirteenth annual Grand Isle Tarpon Rodeo. Dr. Wagner's catch was 6 feet 8 inches long and weighed 122 pounds.

Dr. Julius L. Wilson was recently elected president of the Tuberculosis and Public Health Association of Louisiana.

During the month of August the Society had the misfortune of losing one of its active members, Dr. J. J. Wymer.

TREASURER'S REPORT

Bank Balance, July 31, 1941.....	\$5,839.19
August Credits	360.47
Total Credits	\$6,199.66
August Expenditures	478.64

Actual Book Balance, August 31, 1941..\$5,721.02

EDWIN L. ZANDER, M. D.,
Secretary.

LOUISIANA STATE MEDICAL SOCIETY NEWS

CALENDAR

PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
East Baton Rouge	Second Wednesday of every month	Baton Rouge
Morehouse	Second Tuesday of every month	Bastrop
Orleans	Second Monday of every month	New Orleans
Sabine	First Wednesday of every month	
Second District	Third Thursday of every month	

ASSUMPTION PARISH MEDICAL SOCIETY

The Assumption Parish Medical Society held a called meeting August 25 at Napoleonville for the purpose of electing officers and attending to routine business. The meeting was called to order by Dr. H. C. Dansereau, who was the last elected President of the Society, Dr. P. M. Payne, acting as Secretary. The meeting was held in the Office of the Assumption Parish Health Unit, in the Court House. A quorum was present.

Officers elected were as follows:

President: Dr. H. C. Dansereau, Labadieville

Vice-Pres.: Dr. C. S. Roger, Napoleonville

Sec.-Treas.: Dr. P. M. Payne, Napoleonville

Other members present were: Dr. A. A. Aucoin, Plattenville; Dr. H. A. LeBlanc, Paincourtville; Dr. T. B. Pugh, Napoleonville; Dr. J. D. Billeau-deaux, Klotzville.

The last two were present by proxy, having requested Dr. Payne to represent them at the meeting.

After the election of officers, the Society then elected to membership Dr. Julius Daigle, of Paincourtville, who being present expressed appreciation at being elected to membership in the Society.

No papers were read but open discussion was held on various topics of interest. Drs. Dansereau and Roger discussed some of the phases of poliomyelitis. Dr. LeBlanc also spoke of the rarity of typhoid fever and smallpox as compared with former years, and this discussion brought to mind a number of cases of what were at first thought to be typhoid but had finally decided to be typhus fever. This was in years past however.

Dr. Payne mentioned the recent proposal of the State Department of Health to furnish anti-luetic treatment to any physician in the parish regardless of financial status of patient.

There being no other business the Society adjourned to meet again in Napoleonville, in December.

P. M. PAYNE, M. D., Sec.

BIRTH CERTIFICATES

There are a large number of persons of American birth who, because no birth certificate was issued at the time of their birth, have difficulty in establishing their citizenship. Since so many rights and privileges depend upon citizenship it is important that a procedure be evolved which will enable

such individuals to receive official recognition of their American origin. Since citizenship is a matter of national as well as of local consequence it is desirable that a uniform practice be adopted by each of our states.

Admission to the armed forces depends on citizenship as does employment in most government positions. Furthermore, several statutes provide that on certain types of restricted defense work citizenship is a prerequisite to employment. It is important in such cases that some uniform procedure be available under which a man can establish his place of birth.

Under a proposed plan, persons who have been unable to secure a regular birth certificate could apply to their State Bureau of Vital Statistics, or other similar official agencies, for a "Delayed Birth Certificate."

They would be asked to submit certain newly prescribed evidence such as hospital records, physicians' records, a record from a local state or Federal census, family Bible record, baptismal or confirmation certificate, a school record, insurance policy, driver's license, marriage license, or similar evidence of date and place of birth.

If a satisfactory evaluation can be made of the evidence submitted, the agency concerned would issue the "Delayed Birth Certificate" which would then have the same force as a regular birth certificate.

All the states have been asked by the Federal Government to cooperate in this procedure.

Mr. Patterson and Mr. Forrestal, it was announced, also have sent a memorandum to all present and prospective Army and Navy contractors and subcontractors, informing them of the proposed new procedure and directing them to accept "Delayed Birth Certificates" as evidence of citizenship.

Their memorandum further states:

"In the event that the state in which the employee or applicant for employment claims birth is one in which the procedure outlined has not been adopted, evidence as required by the manual should be submitted to the employer, and if found to be in accordance with the standards set up by the manual, it is recommended that such employee be retained and that such applicant be given employment. In cases where there is reasonable assurance of citizenship, but adequate documentary evidence

is not immediately available, it is suggested that the Army or Navy plant protection inspector, if available, be consulted, and that a continuance of employment for thirty days be given such employee, or that such applicant be employed for thirty days, pending receipt of valid documentation as required by the manual."

THE RESERVE OFFICER
September, 1941

NEW JEFFERSON DEAN

Dr. William H. Perkins, former Head of the Department of Preventive Medicine, and Director of the Hutchinson Memorial Clinic of Tulane University School of Medicine, has assumed the duties of Dean of Jefferson Medical College in Philadelphia.

Dr. Perkins, a native of Philadelphia, graduated from Jefferson Medical College in 1917. He studied in London and Paris, receiving a fellowship from the Rockefeller Foundation. He organized the medical department of the Siamese school at Bangkok at the request of that government, and served as Professor of Medicine and also as physician to the royal family. In recognition of his service, he received the decoration of the Order of the White Elephant.

Dr. Perkins has been active in medical circles in New Orleans and the state since he became a member of the Tulane faculty. He has been a member of the parish and state medical societies since 1931, taking considerable interest in the affairs of both groups. He served as President of the Tuberculosis and Public Health Association of Louisiana, and as a member of the Committee on Tuberculosis of the State Society; he was to have been Chairman of the Section on Public Health and Sanitation for the 1942 annual meeting of the State Society in New Orleans. Dr. Perkins was a member of the Journal Committee from 1937 up to the time of his resignation on leaving the city, and has contributed generously of his time and good counsel in the deliberations of the committee. His many friends and colleagues in New Orleans and Louisiana will miss him and regret his absence from their gatherings.

ANNUAL TULANE CLINICS AND HOMECOMING WEEK

The annual Tulane clinics which have been held for the past few years successfully, this year will be held the week beginning October 20. These clinics represent an intensive graduate medical instruction course which has well repaid those who attended in the past. An interesting program has been arranged for this year. The same general arrangement schedule will be enforced this year as in the past. In the morning at the Hutchinson Memorial and Charity Hospital amphitheater there will be held one hour lectures or dry clinics. A pathologic conference will also be held in the morning and on Saturday morning there will be a symposium on some subject of live interest.

Starting at 1 o'clock in the afternoon there will be a series of twenty minute talks and demonstrations by members of the faculty of Tulane Medical School. These will continue until 4 o'clock.

On Saturday, October 25, the annual football game between Ole Miss and Tulane will be played in the Tulane Stadium. This is Tulane's homecoming game and there will be a large number of alumni in attendance. The week's program will afford not only a chance for the practitioner to review the latest advances in medicine, but will also give him the opportunity of seeing his former friends and classmates. This week will give occasion to Tulane alumni to take a short holiday in which duty may be combined with pleasure.

L. S. U. APPOINTMENTS

Registration in the School of Medicine has been completed and classwork began on Monday, September 15, with a total enrollment of 344. Several new appointments to the faculty are announced.

Edwin Byer has been appointed Assistant in Physiology. Mr. Byer received his A.B. degree at the University of Maine, where he served as an assistant in zoology. During the past year he has been engaged in teaching and research in physiology at the University of Iowa College of Medicine.

Dr. John S. LaDue, who has been appointed Instructor in Medicine, completed his undergraduate work at the University of Minnesota and received his medical degree from Harvard Medical School in 1936. After serving an internship at the Long Island College Hospital in Brooklyn, New York, he returned to the University of Minnesota where he held a teaching fellowship and residency at the University of Minnesota Hospital and completed work for the M.S. and Ph.D. degrees in Medicine.

Dr. Wallace Sako, Instructor in Pediatrics, received his undergraduate, medical, and Ph.D. degrees at the University of Minnesota. He later served as Fellow in Pediatrics at that institution where he also completed his hospital training. In the university Department of Pediatrics, Dr. Sako was associated with Dr. C. A. Stewart who recently assumed the headship of the Department of Pediatrics in the Louisiana State University School of Medicine.

Dr. George R. Meneely has been appointed Instructor in Medicine. He received his undergraduate training at Princeton University and completed his work for the M.D. degree at Cornell University in 1937. After serving an internship at Strong Memorial Hospital in Rochester, New York, he was appointed a Fellow in Medicine at the University of Rochester School of Medicine, in which capacity he served for one year. He was then appointed Assistant Resident Physician at Strong Memorial Hospital and concurrently served as an assistant in the Department of Medicine at the University of Rochester School of Medicine. During the past year he held a James Gleason Fellow-

ship in Medicine at the University of Rochester School of Medicine, which post he resigned to accept an instructorship at Louisiana State University.

Dr. John Skogland, Assistant Professor of Neuropsychiatry, received his undergraduate training at Hibbing Junior College and his medical training at the University of Minnesota. His hospital training was received at Gillette State Hospital of Minnesota and in the University of Minnesota Hospitals. From 1937-1939 Dr. Skogland was a fellow in Neuropsychiatry at the University of Minnesota and in 1939-1940, Clinical Instructor in Neuropsychiatry in the same school. During the year 1940-1941 he held a research scholarship at Harvard Medical School and at the time of his appointment to the L. S. U. School of Medicine was serving as Instructor in Neuropsychiatry at the University of Minnesota. In addition to his M.D. degree Dr. Skogland holds M.S. and Ph.D. degrees in Neuropsychiatry from the University of Minnesota.

Dr. William F. Alexander and Dr. E. Morton Bradley, instructors in Anatomy in the School of Medicine, resigned during the summer to accept assistant professorships at the University of Georgia School of Medicine.

Dr. John L. Keeley, Assistant Professor in the Department of Surgery, recently resigned to enter practice in Chicago.

Dr. Merrill W. Everhart, Instructor in Pediatrics, has been granted a leave of absence, having been called to active duty as Captain in the Medical Reserve Corps of the Army. Dr. Everhart has been assigned as Chief Medical Officer of the Port of Embarkation in New Orleans.

VAN METER PRIZE AWARD

The American Association for the Study of Goiter again offers the Van Meter Prize Award of three hundred dollars and two honorable mentions for the best essays submitted concerning original work on problems related to the thyroid gland. The award will be made at the annual meeting of the association which will be held at Atlanta, Georgia, June 1-3, 1942, providing essays of sufficient merit are presented in competition.

The competing essays may cover either clinical or research investigations; should not exceed three thousand words in length; must be presented in English; and a typewritten, double spaced copy sent to the corresponding secretary, Dr. T. C. Davison, 478 Peachtree Street, Atlanta, Georgia, not later than April 1.

DOCTORS FOR BRITAIN

The Division of Medical Sciences of the National Research Council has again publicized the fact that doctors are badly needed in Great Britain. There is an urgent and a real need for their services, both in the Royal Army Medical Corps and in the emergency medical service. Physicians who might

wish to volunteer for this service should communicate with the National Research Council, 2101 Constitution Avenue, Washington, D. C.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY

The written examination and review of case histories (Part I) for Group B candidates will be held in the various cities of the United States and Canada on Saturday, January 3, 1942, at 2:00 p. m. Candidates who successfully complete the Part I examination will proceed automatically to the Part II examination held in June, 1942.

MILITARY SURGEONS MEETING

The Association of Military Surgeons of the United States will meet October 29-November 1 at the Brown Hotel in Louisville, Ky. A splendid program has been arranged for the meeting which will be attended by most of the high ranking officers in the regular army.

ALLERGY MEETING

The fourth annual Forum on Allergy will be held in Detroit, Michigan, on January 10 and 11, 1942.

The first annual meeting of the recently formed Mississippi Valley Medical Editor's Association will be held at the Hotel Montrose, Cedar Rapids, Iowa, on the evening of October 1, 1941, during the seventh annual meeting of the Mississippi Valley Medical Society, which will continue through October 3.

Duke University School of Medicine and Duke Hospital will hold a Symposium on Problems of Civil and Military Emergencies on October 16-18, 1941 in the Page Auditorium. A program has been arranged which will include nationally known authorities on their subjects. Also of interest is the fact that tickets for the Colgate-Duke football game will be available to doctors registered at the symposium, provided application is made prior to October 11.

Under the auspices of the American Association of Industrial Physicians and Surgeons, the American Conference on Industrial Health will hold its second annual meeting on November 5 and 6, 1941, at Chicago Towers, Chicago. This organization maintains a public forum for all who are interested in the prevention of disease, injury and disability in industry, and the active supervision and promotion of health in industrial groups.

There is a full-time position open at the U. S. Marine Hospital at Carville for a physician to fill a vacancy for a period of approximately one year, or during the national emergency. The work is wholly on leprosy patients.

The position pays \$3,200 per annum, less deductions of \$50.00 per month for housekeeping quar-

ters, which will be furnished. Applicant must be a citizen of the United States and a graduate of an A-1 Medical College, having two years' internship or two years in private practice.

Communications concerning this position should be addressed to Dr. G. H. Faget, Medical Officer in Charge, at Carville, stating age, marital status (including dependents), education, special training, if any, and experience.

Dr. Thomas J. Healy announces the removal of his office from Thibodaux to 1108 Jahneke Avenue, Covington, Louisiana; he will continue his practice in this new location.

A change in the spelling of the name "Petrolagar" to "Petrogalar" has been announced by the Petrolagar Laboratories. The change is being made in both the product name and corporate name.

Company officials, while pointing out that the adoption of the new spelling does not affect the formula or quality of the product in any way, said that they considered the change advisable to avoid any possible misconception as to the nature of the product.

"Because it has never been the intention of the company to imply that agar-agar was used for any other purpose than as an emulsifying agent, the last syllable of the former name has been altered in favor of the new spelling," officials said. Officials emphasized that no change has been made in the size of the package, price, or formulae and that each of the five different types of the product will carry the new spelling "Petrogalar." The new corporate name is: Petrogalar Laboratories, Inc., and the address remains, 8134 McCormick Boulevard, Chicago, Illinois.

INFECTIOUS DISEASES IN LOUISIANA

The morbidity report of the Section of Epidemiology of the Louisiana State Board of Health showed that for the week ending August 16 the following diseases were listed in numbers greater than ten: 460 cases of syphilis, 38 of pulmonary tuberculosis, 36 of gonorrhea, 16 of cancer, 13 each of malaria and typhoid fever, and 11 each of pneumonia and whooping cough. The typhoid fever cases were pretty well scattered throughout the state, Franklin with four and Morehouse with two being the only parishes reporting more than one case. Two cases of poliomyelitis were discovered in Orleans and one in Grant parish; in Orleans three cases of typhus fever were discovered, as well as two in Iberia and one in Acadia. There was a marked increase in the number of cases of syphilis reported in the next week, there being 677 cases listed; followed by 42 of gonorrhea, 31 of pulmonary tuberculosis, 16 each of cancer and pneumonia, 12 of whooping cough, and 10 of typhus fever. Only eight cases of typhoid fever were reported this week, no one parish listing more than

two. Seven cases of poliomyelitis were listed, one of undulant fever, and one of Rocky Mountain fever, the latter from Rapides Parish. For the week ending August 30, syphilis was back down to 455 cases, followed by 40 of pulmonary tuberculosis, 32 of gonorrhea, 15 each of cancer and pneumonia, 14 of malaria, and 11 of typhoid fever. Again the typhoid fever cases were spread through the state, with Lafayette and Ouachita parishes reporting two cases, and the other parishes one. A case of small-pox was discovered in Red River Parish; epidemic cerebrospinal meningitis, one case, was discovered in Orleans. Orleans Parish also reported one case of septic sore throat, but both this case and that of meningitis were imported. Another case of undulant fever was reported this week, this time from Iberia Parish. A still further drop occurred in the number of syphilis cases for the week ending September 6, there being only 237 cases reported. Twenty-five cases of gonorrhea, 18 of pulmonary tuberculosis, 17 of pneumonia, 14 of typhoid fever, and 13 of cancer were the only other diseases occurring in figures greater than ten. Of the eleven parishes reporting typhoid fever, only one listed three cases and two, two cases; the others reported one each. For the thirty-seventh week of the year, ending September 13, syphilis jumped up again to 340 cases. Forty cases of pulmonary tuberculosis were reported, as well as 34 of gonorrhea, 16 of typhus fever, 15 of typhoid fever, 14 of cancer, and 11 of pneumonia. Septic sore throat, two cases, was discovered in Iberia Parish; four cases of undulant fever were discovered, one each in Iberia, Orleans, Ouachita and St. Mary parishes. A case of poliomyelitis was reported by East Baton Rouge Parish.

HEALTH OF NEW ORLEANS

The Bureau of the Census, U. S. Department of Commerce, has reported that for the week ending August 9, there were listed 119 deaths in the City of New Orleans, 73 of which were in the white and 46 in the colored race, and 11 in infants. After the marked drop of the previous week, the number of deaths for the week of August 16 again increased and exceeded that of two weeks ago. There were 172 deaths this week, divided 104 white and 68 negro; of the 25 infants dying, 10 were in the white and 15 in the negro race. This was more than double the number reported in the previous week. A slight decrease was noted in the week of August 23, 163 deaths occurring, of which 89 were white and 74 negro. The infant mortality went down to 15, about equally divided between the two races. The next week, that of August 30, the number of deaths in the city remained about the same. The total number of deaths was 164, an even 100 white and 64 negro people dying during this period. The infants deaths jumped up to 30, exactly three times the three-year average for the corresponding week, with a ratio of two negro babies to one white. For the week of September 6, the last week

for which figures are available, the number of demises was considerably lower. There were 101 deaths reported, 68 white and 33 negro, and 13 infant deaths, nine white and four negro.

MICHAEL EDWARD CONNOR
(1879-1941)

Dr. M. E. Connor died in New Orleans, Sunday, September 7, after a short sickness. For the last eight years Dr. Connor had been port physician for the United Fruit Company; he spent many years in Panama, Ecuador, and Central America prior to coming to New Orleans. He was a member of the Orleans Parish and Louisiana State medical societies.

SOL S. KAUFMAN
(1906-1941)

Dr. Sol S. Kaufman, of Crowley, expired at the age of 34 in Galveston, Wednesday, September 3, after a prolonged sickness. Dr. Kaufman was well known in his home city as a splendid doctor and as an active civic worker. He graduated from the University of Mississippi in 1928, and from the University of Illinois School of Medicine in 1931. After serving an internship at the Charity Hospital, he went to Rayne, where he practiced for five years, then moved to Crowley where he had been established for the last four years.

JOSEPH RIGNEY D'AUNOY
(1890-1941)

Dr. D'Aunoy died September 17 in New Orleans in the fifty-first year of his life. Dr. D'Aunoy graduated from Tulane Medical School in 1913. He was for some years connected with the Department of Pathology which subject he early took up as his life specialty. Subsequently he became Professor of Pathology and Bacteriology at the Louisiana State University Medical School; then he became Dean of that medical school. Dr. D'Aunoy was a consultant to the architects of the building of Charity Hospital and was very largely responsible for the physical make-up and the equipment of the present building. Several years ago D'Aunoy resigned from his position as Director of the Laboratory of Charity Hospital and from his connection with the Louisiana State University Medical School. Dr. D'Aunoy was for many years active in the Orleans Parish Medical Society and State Medical Society.

WOMAN'S AUXILIARY

Louisiana State Medical Society

Greetings to all Parish Presidents:

The fall of the year is fast approaching and with it the resuming of auxiliary activities. Listed below you will find the eight projects which the State Auxiliary will sponsor for 1941-42.

ENTERTAINMENT FOR MEN IN SERVICE

Mrs. Geo. D. Feldner
128 Behan Street
Natchitoches, Louisiana

ORGANIZATION

Mrs. Fred L. Fenno
1630 Napoleon Avenue
New Orleans, Louisiana

RED CROSS

Mrs. F. Creighton Shute
Opelousas, Louisiana

INDIGENT WIDOWS' FUND

Mrs. James W. Warren
470 Audubon Blvd.
New Orleans, Louisiana

INDIGENT PHYSICIANS' FUND

Mrs. John D. Frazar
DeRidder, Louisiana

DOCTORS' DAY

Mrs. J. P. Mauboules
Rayne, Louisiana

CANCER CONTROL

Mrs. N. H. Polmer
2207 Carondelet Street
New Orleans, Louisiana

ANTI-TUBERCULOSIS CAMPAIGN

(Handled by Public Relations Chairman)
Mrs. J. O. Duhon
Lafayette, Louisiana

Your attention is called to the fact that the State Auxiliary is sponsoring two new projects, namely; Indigent Widows' Fund and Entertainment for Men in Service.

The Indigent Widows' Fund is a very worthy cause and, when the method of operation is better known to the parish auxiliaries, will no doubt be regarded enthusiastically. The auxiliaries will recognize in this project the means of fulfillment of a beneficence which should be near and dear to the heart of every doctor's wife: that of lending a helping hand to her sisters who at the moment are less fortunate than herself, giving a little of life's comforts and blessings when most needed, making the heartache and heartbreak a bit less acute and her world a better place in which to live. Can there be any greater philanthropic work in which we as doctors' wives can participate?

The work of the Committee on Entertainment for Men in Service does not include entertainment for men in camps or recreational centers, but rather for those ill and convalescing in United States Government Hospitals. This project offers an almost unlimited field of activity in which all auxiliaries, whether large or small, close or far off, can take part. This work is much needed at the present time and the great amount of good which will result from such an endeavor can readily be seen.

Listed below are a few suggestions which may prove helpful when planning your part in this undertaking.

Supplying the following:

Cigarettes and tobacco
Subscriptions to appropriate magazines
Candy, cake and ice cream
Games and writing materials
"Home Town" papers
Recreation room equipment
Portable radios.

Arranging:

Programs of local talent
Drives for those not confined to bed.

The convalescing soldiers welcome visitors, particularly those who will read to them or participate in games like chess, checkers and cards. Sometimes it is necessary to write letters for sick soldiers; this is a very commendable service. These are only a few suggestions. It is a good idea to visit the government hospital nearest you and ascertain

where you can help most. This project should appeal to most of us at the present time when every real American is not only anxious but ready and willing to do his part for national defense.

May I take this opportunity to wish all of you a successful auxiliary year; one crowned with splendid achievement due to the hearty cooperation and untiring efforts of all concerned. Please do not hesitate to call on me at any time that I can be of assistance to you. I am planning to visit all of the parish auxiliaries and am looking forward to this with a great deal of pleasure.

With every good wish for health, happiness and success, I am

Sincerely,

Mrs. Aynaud F. Hebert
President

Respectfully submitted,

Mrs. Jules Myron Davidson
Chairman, Press and Publicity

BOOK REVIEWS

Carlos Finlay and Yellow Fever: By Carlos E. Finlay, M. D., F. A. C. S. New York, Oxford University Press, 1940. Pp. 249. Price \$4.00.

This volume is edited by Morton C. Kahn, M. A., Ph. D., Sc. D. of Cornell University Medical College, New York, who notes the renewed interest in yellow fever from the research and public health points of view. Dr. Kahn regards Carlos Finlay as at least a trail blazer and pays a handsome tribute to the U. S. Army Board, composed of Reed, Carroll, Lazear and Agramonte, that studied the transmission of yellow fever. The author, son of Carlos Finlay, considers that the army board brilliantly confirmed the work of his father. This is the general view of Spanish scientists, and indeed of many others; and the author tells us that our own Dr. Matas in association with others established Finlay's birthday, November 3, as the Day of American Medicine. The author's purpose frankly is to correct the misconception of his father's work, work which in part was carried on 20 years before the investigation of the U. S. Army board, and one must agree that a very plausible case is established. In the introduction we are told that Sir Ronald Ross thought so well of Finlay's work that he proposed the latter for the Nobel prize, which recently had been awarded to Ross for his work on the transmission of malaria.

In questioning the value of the work of Finlay much has been made of the alleged lack of identity of the mosquitoes he used with those successfully employed by the U. S. Army board. Of course recent work has shown that other mosquitoes may be effective vectors, at least experimentally, but according to the volume before me the alleged lack

of identity is a matter of changed nomenclature. One is bound to be impressed by the opinion of Juan Guiteras, one of the ablest students of yellow fever, who is quoted as saying: "Dr. Finlay proved the truth of his doctrine. If he failed to convince us the fault was ours and not of his prevision."

Carlos Finlay was born of English-French parents in Puerto Rico in 1934, the son of a physician. He graduated in medicine at Jefferson Medical College, Philadelphia, in 1855 where he became a friend of S. Wier Mitchell (and acquired a microscope). Carlos Finlay apparently made the independent observation that cholera might be carried by water. In later life he occupied several important administrative posts, including one as contract surgeon in the U. S. Army. Finlay seems to have inoculated (by means of mosquitoes) 102 persons of whom 11 came down with yellow fever, 5 others were doubtfully successful and 86 were negative.

According to the author recent discoveries in the field of yellow fever research have nullified some of the objections that were brought against Finlay's work when the studies of the U. S. Army Board were published.

So well convinced was Finlay of the soundness of his views of the transmission of the disease that as prophylactic procedures he recommended mosquito screens and antilarval measures,—these over a year before the studies of the Army Board had been completed, but at the same time seemed uncertain as to just how mosquitoes acquired the infection.

The book reviews much of the research carried on by others at the time the mosquito theory was

relatively new, also much of the work of recent years. Noguchi's well-known error in identifying a leptospira as the cause of yellow fever is explained by the statement that Noguchi was working with material from cases of Weil's disease.

The author stresses that Finlay's mosquito inoculations were primarily intended to prove the practicability of immunization.

The last chapter of the text proper is devoted to the consideration of the evidence on the place of origin of yellow fever and the author comes to the conclusion that the data all point to America as the original source of the disease; in contrast with the conclusion of Henry R. Carter who considered the original source probably to be Africa. Considerable attention is devoted to the first U. S. yellow fever commission presided over by Dr. Stanford E. Chaillé in 1879, a commission for which Dr. Matas, then Mr. Matas, acted as secretary. Thirty-six years ago the last epidemic of yellow fever in the U. S. occurred in New Orleans and the likelihood of another ever occurring seems remote thanks to the exact knowledge we have of the disease, which knowledge has pointed the way to readily applied preventive and suppressive measures. One does not need to accept in full the son's appraisal of the father's work to appreciate that Carlos Finlay was an exceptionally gifted observer, and that his work played an important part in the development of the knowledge that has robbed yellow fever of its terrors for many parts of the world. To those interested in medical and public health history anywhere this volume will prove of great value; to physicians and sanitarians of the South it should be of special interest.

G. W. McCoy, M. D.

Abdominal Operations: By Rodney Maingot, F. R. C. S., Eng. New York, D. Appleton-Century Co., 1940. 2 vols., illus. Price \$18.00.

The author has given us, in these two volumes, a good summary on abdominal operations. He has very wisely culled from the literature of the past ten years those modern surgical procedures that are considered pretty well established at this time. In addition, of course, he has not lost sight of the many well established surgical procedures that have come down to us from the many years past. In all instances these older, established procedures are brought up to date in every way. The more modern procedures are thoroughly explained, and their merits and demerits well analyzed.

As in all works of this type, the subjects for general consideration are first presented. Thus the proper choice of incisions is adequately discussed. The matter of drainage is appropriately considered. Wound complications are interestingly given; and, in general, he leads up to the sections devoted to diseases of the various abdominal organs and structures in a very acceptable manner. There is scarcely anything of importance to the surgeon in

abdominal operations that the author does not adequately discuss.

Diseases involving the stomach, duodenum, spleen, pancreas, gallbladder and bile passages are very interestingly presented, inasmuch as the author appears to limit himself principally to the presentation of the more practical phases of these subjects. The various types of intestinal obstruction are likewise very clearly discussed. Hernias involving the anterior abdominal wall, as well as the various internal hernias that become strangulated, are very well discussed. Diseases involving the small intestines, as well as the large bowel, are not only clearly given, but the methods of dealing with them are, in most instances, well illustrated by splendid pictures. As a matter of fact, both volumes abound with very good illustrations which depict the subjects under discussion.

The writer does not fully agree as regards several policies of the author. For example, it is felt, by the writer, that in some instances the author is perhaps somewhat radical in some of the procedures. The performance of a major surgical procedure upon the stomach, followed by, at the same sitting, another large procedure, such as cholecystectomy, does not meet with the full approval of the writer. However, this is, of course, a matter of individual opinion, and no doubt the author's favorable experiences in such matters, are the things which prompt him to such practice. One of the many nice features of these two volumes is the fact that the author has his references placed immediately after the authors whom he is quoting on that particular subject. This eliminates a long bibliography at the end of each chapter and, in the writer's opinion, is a decided improvement in books of this kind.

Generally speaking, the writer considers these two volumes an excellent addition to our literature. Not only are the subjects adequately discussed, but they are done so in a fairly easy fashion, making the reading of them much of a pleasure. In addition these volumes represent a very good summary of the many contributions to the field of abdominal operations, especially during the past ten years.

FRANK LEO LORIA, M. D.

Cardiac Classics: By Frederic A. Willius, M. D., M. S. in Med., and Thomas E. Keys, A. B., M. A. St. Louis, C. V. Mosby Co., 1941. Pp. 858; illus. Price \$10.00.

Dr. Willius, a cardiologist of note, and Mr. Keys, reference librarian at the Mayo Clinic, have joined forces in producing a magnificent book of great historical interest. Willius has picked out for republication classic works on the heart and circulation. The original paper, or its translation, is preceded by a short biographic sketch of the author. Before practically all of the sketches there is a picture, usually a well-known reproduction of a

etching or a portrait of the man who made the contribution.

Naturally the first selection is from the pen of William Harvey and is his revolutionary research on the movement of the heart and blood in animals, published in 1628. Succeeding this article comes a series of anatomic papers, together with one or two of the physiologic nature. The first clinical paper is Heberden's "account of a disorder of the breast," angina pectoris, and this is followed by the first therapeutic paper, that of Withering on the use of foxglove, written in 1785. From then on outstanding contributions follow each other in chronologic order until present day living authors' contributions are reached. Graham Steell, Aschoff, Keith and Herrick are the only four living authors whose articles are published.

Needless to state, the book is intensely interesting. It is fascinating to read a short account of the life of van Leeuwenhoek, Adams, Corrigan, Laennec, Duroziez, Flint, Traube, Potain, Fallot, Broadbent, Mackenzie, as well as many other men who have made fundamental contributions to the study of the heart and circulation, and then read the article which, in part, is responsible for their fame. The format of the book is excellent. It is printed on glossy paper which reproduces well the illustrations. This is quite a favorable attribute because some of the plates are taken from old cuts which would be difficult to print clearly without such a high grade of paper. Not only those interested in medical history, but any medical man will derive pleasure from perusing this book. It gives one a real thrill to read the original presentation of facts which are now so definitely ingrained in the study of the heart and circulation that they are accepted as a matter of course.

J. H. MUSSER, M. D.

Science and Seizures: By William G. Lennox, M. D., Sc. D. Hon. New York, Harper & Bros., 1941. Pp. 258. Price \$2.00.

The author of this excellent work is a distinguished scientist, investigator, and neurologist, and his book "Science and Seizures" is unique in that it collects, correlates, and interprets all of the available data on epilepsy and migraine. There is a fund of valuable and useful information in this volume, and it sheds a brilliant new light on the subjects.

Of special interest and importance is the suggestion that the term cerebral dysrhythmia be used instead of epilepsy. It has been discovered that an underlying abnormality, which can now be demonstrated in practically all patients suffering with epileptic convulsive seizures, is a disturbance of the pulsations of the electrical currents of the brain. It may be that the seizures of epilepsy are due to faulty functioning of certain parts of the brain as is shown by electrical records. On the other hand, the "seizures" of hysteria are due to sub-

conscious impulses or conflicts and they are not accompanied by abnormal electrical waves of the brain. It is very likely that this will lead to the rejection of the old rule-of-thumb method of making a differential diagnosis between epileptic and hysterical seizures, since electroencephalographic evidence is quite distinctive.

While the author believes there is a positive relationship between epilepsy and migraine, he suggests that a thorough and comprehensive inquiry be made to determine the accuracy of his theory. If work with brain waves has the validity which it presently suggests, and if cerebral dysrhythmia is a medical entity amenable to treatment, we may be on the verge of solving large medical and economic issues.

For generations fear, superstition, and ignorance have surrounded victims of epilepsy and migraine. This book of Dr. Lennox gives hope and courage to those suffering with these illnesses, and it is believed that research and eugenics, with intelligent energetic cooperation from the public, will help to solve their problems.

C. P. MAY, M. D.

Medical Nursing: By Edgar Hull, M. D., F. A. C. P., Christine Wright, R. N., B. S., and Ann B. Eyl, B. S. Philadelphia, F. A. Davis Co., 1940. Pp. 588; illus. Price \$3.50.

This book aims to impart to the student nurse an understanding of the principles of general medicine, to furnish her with brief yet accurate descriptions of the important diseases which fall within the realm of internal medicine, and to indicate the medical treatment, nursing care, and dietary management of these diseases. Written by an internist, a nurse, and a dietitian, members of the staff of the Charity Hospital of Louisiana at New Orleans, the book ably and amply fulfills its stated aims.

The choice of content is excellent. Nomenclature has been simplified to the utmost. Chapter outlines, topic reviews, headings and sub-headings render almost unnecessary the adequate index. The use of two columns of print to the page, of large clear type, and of boldfaced type for titles of paragraphs makes the material contained exceptionally accessible for ready reference.

Having used this text in a course of medicine for nurses, this reviewer recommends it unhesitatingly.

EDWARD MATTHEWS, M. D.

The Parasites of Man in Temperate Climates: By Thomas W. M. Cameron. Toronto, the University of Toronto Press, 1940. Pp. 182. Price \$3.00.

This little volume is as refreshing and sound as it is complete, and demonstrates that an introduction to the animal parasites of man does not require an encyclopedia.

Following a very brief introduction presenting

the author's point of view as a teacher and investigator, the sections covered include the Protozoa, Helminths, Leeches, Arthropods, a seven-page section on Technique, a two-page Bibliography and a short subject Index.

The book is clearly written, neatly printed and is provided with numerous line drawings and photographs. The terminology is on the whole that which is standard with American students of the subject. Few typographical errors have been noted. For the physician, medical student or layman who wishes to have in his library a brief authoritative presentation, Professor Cameron's little volume should provide the answer.

ERNEST CARROLL FAUST, PH. D.

The Story of Clinical Pulmonary Tuberculosis: By Lawrason Brown, M. D. Baltimore, Williams and Wilkins Co., 1941. Pp. 411. Price \$2.75.

Lawrason Brown was not only the beloved physician to his patients and a great teacher to the many physicians who came under his influence at Saranac Lake, but also a student of medical history and a bibliophile. His notes, collected for years, on the history of the development of the diagnosis and treatment of pulmonary tuberculosis have been arranged and edited by his widow and friends to make this posthumous volume. Although not the integrated and possibly illustrated work which Dr. Brown might have produced, had he been granted the time, this story of the rise of physical diagnosis, of the introduction of the stethoscope, of the introduction and perfection of x-ray diagnosis, and of the modern methods of treatment, including pneumothorax and surgery, is excellent reading. The references to the stay in New Orleans of the great Austin Flint at the same time that Leonidas M. Lawson briefly graced the chair of Clinical Medicine at the University of Louisiana are of special interest to local medical historians. Much of the material in this book cannot be found assembled elsewhere. It is recommended for the perusal of physicians, medical students, and intelligent laymen. It is a book for the library of all those who listen regularly for rales, study chest plates, or treat lungs by collapse therapy.

J. L. WILSON, M. D.

Accidental Injuries: By Henry H. Kessler, M. D., Ph. D., F. A. C. S. 2nd ed. rev. Philadelphia, Lea & Febiger, 1941. Pp. 803. Price \$10.00.

This book contains much valuable information relative to compensation laws. As a reference for the legal and medical profession it should prove invaluable, especially to those interested in disabilities resulting from accidental injuries. It is written so that the layman can understand it without constant recourse to a dictionary.

It is a splendid compend on problems which arise in regard to economic readjustment. The opinions expressed in many places are open to debate, but on a whole it can be taken as a chart made by a student with wide experience and one who has not stinted the time given to research in order that his own usefulness might be increased.

Any one who is interested in compensation work, or who is interested in medical expert testimony, will do well to keep this volume close at hand, not only for ready concise information, but also for the splendid bibliography which is appended to each chapter.

The chapter on physical restoration and vocational rehabilitation is of great importance.

ISIDORE COHN, M. D.

Roentgen Interpretation: By George W. Holmes, M. D., and Howard E. Ruggles, M. D. Sixth edition. Philadelphia, Lea and Febiger, 1941. Pp. 364. Price \$5.00.

In the present or sixth edition of this well-known volume on diagnostic roentgenology, the subject matter has been revised and brought up to date and new illustrations have been added. This work has been one of the most popular on this subject for the student, the general practitioner and the specialist.

The authors have included in a relatively small volume a remarkable amount of detail regarding the more common conditions in which the x-ray is of value in the diagnostic study. The first chapter on "Confusing Shadows and Artefacts" and Chapter II on "Anatomical Variations and Development" are comprehensive and include the information which is so necessary before an attempt at roentgen diagnosis is made. The next eight chapters (III through X) cover the various systems and pathologic conditions in which roentgenology is employed. The last chapter deals with fluoroscopic technic and emphasizes the dangers and the procedures and equipment necessary in safe and efficient fluoroscopy.

The text is clear and concise and the illustrations are excellent. Besides the reproductions of roentgenograms, line drawings are valuable in demonstrating clearly the anatomy and pathology involved. This work should be considered an essential by anyone interested in roentgen diagnosis.

J. N. ANÉ, M. D.

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THERAPEUTIC PROBLEMS IN WATER BALANCE FROM THE VIEWPOINT OF THE SURGEON*

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AND

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NEW ORLEANS

Our purpose in this paper is to discuss certain paradoxical problems of water metabolism which frequently confront the surgeon, and not to discuss the general physiology of this subject. Such problems in water balance often demand therapeutic consideration more urgently than does the underlying surgical condition. Fundamentally, disturbances in water balance may be divided into two groups: (1) Alterations of the content of body water; (2) alterations of the distribution of body water. Let us consider each of these separately.

ALTERATIONS OF THE CONTENT OF BODY WATER

The amount of water which the organism can retain is dependent directly upon the electrolyte content of that organism. The water-binding power of different electrolytes varies but is possessed to the highest degree by the base, sodium. Sodium is present in relatively higher concentrations in the blood and interstitial fluids than in the intracellular fluid. Dehydration may result, therefore, from an insufficient intake of water, from an excessive loss of water, and, finally, from the decreased ability of the organism to retain water due to electrolyte loss, particularly sodium. From a sur-

gical viewpoint, the loss of water and of electrolytes usually occurs simultaneously. Thus, water and electrolyte depletion occurs as a result of vomiting, diarrhea, duodenal fistula, jejunostomy, ileostomy, and prolonged intubation with the Wangensteen or Miller-Abbott tube. The effects of loss of water and of loss of electrolytes may be distinguished from each other. Loss of water leads to dehydration, which is characterized by dryness of the skin and mucous membranes, softening of the eyeballs, hemoconcentration, increase in the blood non-protein nitrogen and sugar, increase in the carbon dioxide content of the blood and, finally, a lowered output of urine. Loss of electrolytes leads to a diminished ability of the body to hold water, and therefore a secondary dehydration results. If, however, water alone is administered in the presence of electrolyte loss, a more characteristic syndrome appears: cramps in the muscles, particularly of the legs, muscular fatigue, nausea and vomiting (McCance¹).

Thus we come to the paradoxical problem of the dehydrated patient who is unable to retain either water or electrolytes. The usual history here is that of prolonged diarrhea and repeated vomiting or of profusely draining duodenal or jejunal fistula which has been treated with electrolyte-free water by mouth or by vein. The patient presents the appearance of severe dehydration with hemoconcentration. Blood examination reveals a definite acidosis with reduction of the blood sodium level and decreased carbon dioxide combining power. The administration of either isotonic glucose or sodium chloride solution by vein results in a profuse diuresis which equals or even, upon occa-

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sion, exceeds the amount of solution which was administered. What has happened in this instance? The continued loss of sodium base has resulted in secondary dehydration which has been inadequately treated with water alone. Eventually, replacement by water combined with sodium loss has led to a state of hypotonicity of the body fluids. Owing to the diminution in the total amount of base, the body is unable to retain water. The administration of isotonic sodium chloride solution (0.85 per cent) results in diuresis, because this isotonic solution behaves as a hypertonic solution with respect to the body fluids. Water is withdrawn from the interstitial tissue spaces and diuresis occurs. This explains the paradox of the dehydrated organism which cannot hold either water or electrolytes. A similar phenomenon has been produced in dogs (Davis and Dragstedt²) and in man (McCance¹). The treatment is simple. Isotonic sodium chloride solution should be given in combination with desoxycorticosterone acetate (D. O. C. A.), which will cause a retention of the sodium chloride in the tissues, thereby aiding the body to replenish its electrolyte and water stores.

Another problem is presented when the administration of water causes a loss of body electrolytes. Intubation of the stomach or small intestine with the Wangenstein or Miller-Abbott tube is a procedure which is often used in surgical patients. As a result, chloride ions, sodium ions, or both, are removed from the body. Electrolyte replacement by vein may be adequate. If such a patient is given water by mouth an additional source of electrolyte loss is added. When water passes into the intestine, sodium chloride enters the water from the intestinal blood vessels so that a final concentration of 250 mg. to 590 mg. per cent may be reached (Goldschmidt and Dayton³). The continued removal of this additional amount of sodium chloride may eventually result in considerable losses. This additional source of electrolyte loss must be taken into consideration when replacement by vein is undertaken.

Another aspect of the general thera-

peutic problem is presented by water intoxication. Much has been written regarding this subject and most workers seem to have confused water intoxication with water-logging of the tissues. In the original description, water intoxication (Larson et al.⁴) was induced by administering electrolyte-free water and was cured by intravenous hypertonic sodium chloride solution. Subsequent work has demonstrated that the syndrome of water intoxication is due to an excessive dilution of the electrolytes of the body with resultant disturbances of the osmotic relationships of the tissues. In our experience, it has been rare to encounter an instance of death from water intoxication in surgical practice. We have observed suggestive symptoms in patients with diabetes mellitus and acidosis due to surgical complications who have been given large amounts of isotonic glucose solution. One such patient received 10,000 c. c. of 5 per cent glucose solution during the 48 hours preceding death. On the other hand, the persistent treatment of patients suffering from electrolyte loss of varied origin with fluid containing no electrolytes may produce minor degrees of water intoxication. The earliest prodromal symptoms of intoxication which we have noted in these individuals have been cramping sensations in the muscles, particularly of the legs, feelings of epigastric fullness and nausea. The remedy is obvious. Those instances of water intoxication which have been reported in the literature have been examples of water-logging of the tissues due to the administration of excessive amounts of isotonic sodium chloride solution.

Vitamin deficiencies present another problem to the surgeon in relation to fluid balance. Such states occur when a reduction of the intake of food is enforced by the presence of an obstruction of the esophagus. They may result also from voluntary reduction of the dietary due to pain produced by a gastric ulcer or carcinoma. A frequent cause of voluntary reduction of food intake is painful and difficult defecation resulting from benign stricture of the rectum. Such patients frequently present the picture of

emaciation, nutritional hypoproteinemia, dehydration and multiple vitamin deficiencies. One of these vitamins, thiamin hydrochloride (B_1), is of particular interest to the surgeon, since its deficiency may lead to acute circulatory failure (Weiss and Wilkins⁵). This vitamin is excreted in the urine, and the administration of intravenous fluids will accelerate the loss of the vitamin from the body. In this way, a borderline case of avitaminosis B_1 may be converted into a definite avitaminosis. Not infrequently, we have noted that these patients, after receiving intravenous fluids for several days, will commence to complain of loss of appetite with numbness and tingling sensations in the extremities. These statements confirm the observations of Cowgill et al.⁶ regarding the effect of fluid administration upon vitamin B_1 loss in the urine in lower animals. In such instances thiamin may be given with the fluid in amounts of 20 mg. daily.

GENERALIZED ALTERATIONS OF THE DISTRIBUTION OF BODY WATER

Water is distributed in the body in three large areas, the intravascular, the interstitial, and the intracellular. The normal flow of water into and out of these locations is promoted by the interaction of the osmotic pressure of the blood and body fluids and the hydrostatic pressure of the blood (Starling,⁷ Govaerts⁸). Fluctuations in the distribution of the body water affect first the interstitial area, which may be called the "buffer" area, since it has to bear the brunt of sudden withdrawals of fluid from, or of sudden excess of fluid in, the blood. Alterations of the fluid content of the interstitial area have but little physiologic effect upon the organism. On the other hand, the body is extremely sensitive to alterations in the water content of the blood. Thus, dehydration exerts its effects mainly through its interference with the functions of the blood. Alterations in the fluid content of the intracellular spaces are the last to occur, and then only to release water to the body when the necessity is great. An increase in the fluid content of the intracellular area may result from

changes in the permeability of the cell membranes, such as occur in various toxic states. These will not be discussed at this time. From a surgical viewpoint, alterations in body water distribution are due chiefly to a diminution in the osmotic pressure of the blood.

This leads us directly to the problem of surgical edema, in which the water distribution is altered in such a way that the fluid volume content of the interstitial tissue spaces is increased. Excluding such factors as affect the circulation in the blood and lymph vascular system, the cause of surgical edema can be narrowed down to hypoproteinemia which lowers the osmotic pressure of the blood. Briefly, hypoproteinemia may result from: (1) deficient intake of proteins due to obstructive lesions of the alimentary canal; (2) deficient absorption of protein in spite of normal intake, due to ulcerative lesions of the absorptive area of the intestinal tract or to diarrhea; (3) deficient formation of proteins by the liver, due to intrinsic disease of the liver, such as portal cirrhosis, neoplasms, and subacute yellow atrophy. The presence of suppurative lesions in the body will interfere with protein regeneration by the liver: (4) protein loss, in the form of repeated hemorrhage, prolonged suppuration, removal of protein in ascitic and pleural fluids; and (5) dehydration.

The fact that dehydration, if allowed to persist, will cause a breakdown of the plasma proteins is often not recognized. The water of metabolism which is produced during this protein disintegration is utilized by the dehydrated organism. In this way, another paradoxical phenomenon confronts the surgeon; namely, edema co-existent with, or resulting from, dehydration. Such patients fall into two groups. In the first group are those who present dehydration and established edema, and in whom hypoproteinemia is due not to dehydration but rather to one of the other causes already listed. Examination of the blood reveals a lowering of the plasma protein level. In the second group the patient presents only the evidences of severe dehydration. Edema is

not present and blood examination reveals a normal or even elevated plasma protein level. The usual treatment at this point is the intravenous administration of glucose or saline solutions which cause the prompt appearance of edema. Examination of the blood will now reveal the true state of the plasma proteins which are found to be diminished in amount. In our experience, the edema which follows the administration of isotonic salt solution in these individuals is more persistent than that resulting from isotonic glucose solution. If it be remembered that every dehydrated patient is a potential candidate for edema, fewer of these patients will be rendered edematous as a result of the administration of fluids. The crux of the problem is clear. Both groups of patients should be treated not for dehydration alone, but also for hypoproteinemia, apparent or latent. Transfusions of blood, plasma, serum or ascitic fluid will be found efficacious (Maes and Davis⁹).

The disturbance of water distribution in hypoproteinemic states generally manifests itself in the form of edema of the lower extremities. This, however, is merely the local expression of a widespread increase in the volume of the interstitial tissue fluid. Thus, edema of the retroperitoneal tissues and of the walls of the gastrointestinal tract is often present. A more serious complication, however, is pulmonary edema, which may appear suddenly. In our experience, it has occurred most frequently as a complication of hypoproteinemia associated with generalized carcinomatosis.

There is another form of edema which is not associated with any apparent alterations of the plasma proteins or blood chlorides. This may be seen when excessive quantities of isotonic sodium chloride solution are administered. In many hospitals such solutions are not strictly isotonic (0.85 per cent) but may be 0.9 per cent or even 1.0 per cent. This difference in tonicity is significant when large quantities of fluid are given. This type of "salt" edema may be very persistent and affects not only the subcutaneous tissues but also the retroperi-

toneal tissues and the walls of the gastrointestinal tract. Edema of the gastrointestinal tract will lead to gastric retention and to extreme constipation which may be mistaken for a paralytic ileus. The walls of the intestinal tract are not only edematous but also markedly distended.

LOCAL ALTERATIONS OF THE DISTRIBUTION OF BODY WATER

Before ending this discussion it might be pertinent to consider the problem presented by those surgical states in which a certain intolerance to fluids exists. In shock due to trauma or to burns there is established an area of increased permeability of the capillaries of variable extent at the site of injury. Through these highly permeable capillaries, plasma flows freely into the interstitial tissue spaces. The administration of fluids lacking proteins, such as glucose or saline solutions, will have only a temporarily beneficial effect. The increase in blood flow associated with the administration of such solutions will result in an accelerated outflow of plasma through the permeable capillaries into the area of trauma. The occurrence of this phenomenon has been observed in experimental shock (Beard and Blalock,¹⁰ Davis¹¹). This problem may be solved by the utilization of such fluids as blood and plasma.

Finally, a peculiar but little recognized problem is presented by that group of surgical conditions in which a mechanical segregation of blood occurs. At some point in the venous system a mechanical obstruction develops which impedes the venous return. Since the arterial flow continues, a large amount of the circulating blood becomes impounded in the capillaries and venules of the affected area. The effects will depend upon the rapidity of establishment of a collateral venous circulation. If this can be developed, as in obstruction of the femoral vein, no systemic circulatory effects are noted. In certain sites, the reestablishment of a collateral venous circulation is anatomically impossible. The administration of glucose or saline solutions under these conditions will accelerate the loss of blood into the area of segregation by

increasing the rate of blood flow. Such solutions, lacking protein, cannot adequately replace the blood which they have helped to remove from the circulation. The clinical importance of the recognition of this phenomenon in relation to the problem of therapeutics has already been stressed (Davis¹²). In what surgical conditions does mechanical segregation of blood occur? In intestinal obstruction associated with strangulation, particularly that resulting from volvulus and from thrombosis of the mesenteric veins, the phenomenon is present. The re-establishment of a collateral venous circulation is an anatomic impossibility in such areas. In hemopericardium with obstruction to the venous return to the heart, an analogous situation exists. The deleterious effect of intravenous glucose or saline solutions has been demonstrated in dogs in which the portal vein has been occluded. The infused animals died more rapidly than the untreated animals (Davis¹¹).

From these statements, it is apparent that in the maintenance of the blood volume under such circumstances reliance should be placed only upon such fluids as blood.

SUMMARY

A brief review has been presented of some problems in the therapeutics of disturbances of fluid balance from the viewpoint of the general surgeon.

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DISCUSSION

Dr. Alton Ochsner (New Orleans): I would just like to say a word about a point which Dr. Davis brought up concerning the possibility of removing electrolytes from a patient with duodenal drainage and who is allowed to drink water. This point was emphasized by Dr. Peters of Yale in a presentation before the American Surgical Association. He showed that under such conditions large amounts of chlorides would be removed from the stomach. This can be obviated by allowing the patient to drink normal saline solution instead of water. We have been able to demonstrate to our satisfaction that patients may be given normal saline to drink, and drink as much they care to, without producing any hypochloremia.

Dr. Allan Eustis (New Orleans): I wish to refer to the remarks made by Dr. Davis concerning thiamin deficiency and interstitial edema of the heart muscles. Recently I had a case of chronic appendicitis; had been dieting practically on milk and crackers for three months. He was persuaded to have his appendix removed and two days later his heart went all to pieces. Electrocardiogram showed evidence of myocardial disease. We gave thiamin chloride, 3,000 units daily. In four days electrocardiogram was normal. If thiamin were given in all surgical cases it might be a good thing.

Dr. L. C. Chamberlain (New Orleans): I think now that we are pretty well satisfied with the fact that thiamin deficiency is responsible for muscle fatigue. It is recognized now that you must have a sufficient amount of vitamin B₁ and vitamin C in sufficient quantities to activate glucose so that it can take care of muscle fatigue. I think where you get in trouble is where patients die on the table or in cases such as Dr. Eustis mentioned. The moral is to have sufficient B₁ and C present to prevent muscle fatigue.

SYMPOSIUM ON INFLUENZA*

ETIOLOGY OF INFLUENZA

A REVIEW

GEORGE W. MCCOY, M. D.

NEW ORLEANS

A review is a satisfactory presentation for the speaker because it makes no demand for originality, and even more important, he does not need to defend what is presented. I will try to review for you briefly the history of, and some of the accomplishments in, recent studies of influenza. My study has been neither complete nor profound but I believe covers the essentials of the subject. If what I bring serves to clarify for you as it has for me, a rather involved subject, I shall be more than repaid for the time and effort I have spent on this review.

In the study of almost any influenza problem, one is confronted with the fact that there exist no final criteria that will justify the diagnosis in an individual case, without reference to a prevailing epidemic.

As Mote¹ expresses it "epidemic influenza is a type of respiratory tract symptom complex; that it is an epidemiologic phenomenon and not a specific etiologic entity."

The same authority² lists 26 important epidemics from 1510 to 1918—an average of about 16 years between.

The origins of epidemics of influenza are hard clearly to ascertain and harder to get agreement among various authorities as to the source of any particular outbreak. The epidemic of 1918 is a case in point. I was in Boston when what we then believed were the very first cases in that outbreak in the United States appeared among Navy personnel and I thought I saw it spread across the continent to San Francisco where I met it six or eight weeks later. When more data were available there was evidence to indicate that an infection that could not be distinguished on any grounds from that of the Boston cases had occurred in some other localities even earlier.

THE PFEIFFER BACILLUS

The first micro-organism to be seriously considered as the cause of influenza was the Pfeiffer bacillus and to show how well established this organism was thought to be I want to quote from a leading authority³ of that day, "Pfeiffer finally, in 1892, described the bacillus which is at present definitely recognized as the etiological factor of influenza." A great physiologist is reported to have remarked that the life of a physiologic fact was three years; I would venture to remark that many bacteriologic "facts" are more hardy but in the end equally mortal. Pfeiffer's bacillus (now *Hemophilus influenzae*) did not long withstand the searching investigations that grew out of the epidemic of 1918. The reasons for failure to survive need not detain us. This organism remains in good standing as a cause of meningitis.

Of the many research projects in which I have been engaged, none gave more surprising and disappointing results than certain experiments carried out in the autumn of 1918 in connection with the influenza then prevailing in this country. A joint board of medical officers of the Navy and Public Health Service was organized to endeavor to throw some light on the cause of the epidemic. The Board was divided into two groups, one working in Boston, the other in San Francisco. Professor M. J. Rosenau was head of the former and he had associated with him two exceptionally able Public Health Service officers, the late Joseph Goldberger, whose researches on typhus and pellagra had already given him a well merited reputation; the other was that ace of experts on infectious diseases, James P. Leake. At San Francisco, I was put in charge and had with me, De Wayne Ritchey of the Navy Department. It was agreed at preliminary conferences in Washington that our work would be on human subjects as we felt that it was a waste of time to use laboratory animals, as these had given consistently negative results. The Navy authorities assured us that at both sides of the continent we would find volunteers among Navy personnel and the

*Read before the Orleans Parish Medical Society, March 24, 1941.

Navy made good on this 100 per cent. It was decided that we would first endeavor to determine whether the causative agent of influenza, which we assumed would be found in the upper respiratory tract of patients in the early stages of the infection, would pass through a bacteria proof filter. Suitable donors were available and in short order the materials for the test were prepared and the nose and throat of each volunteer were sprayed with throat washings from active cases of influenza, filtered as well as without filtration. The unfiltered material was used as a positive control since all of us had no doubt that it would contain the active infecting agent. To our surprise none of the volunteers developed influenza. A few cases of streptococcic sore throat, clinically readily distinguished from influenza, were produced but we failed to bring about a condition that any of us was willing to call influenza. This was a most surprising result—one for which none of us was prepared. The summary of the work at San Francisco is presented here.

SUMMARY OF SAN FRANCISCO STUDIES

"Thirteen volunteers received the filtrate of nasopharyngeal secretions into their upper respiratory passages, while 13 were given the unfiltered secretions after a similar fashion. Ten men were used as contact controls. Some of a filtrate was inoculated into the conjunctival sacs of two, and injected subcutaneously into a third. Whole blood was administered under the skin of one individual.

"Four men were given a pooled suspension of eight living strains of *B. influenzae* into their nasopharynges and four were given the filtrate of the same suspension.

"Care was taken to control every step, and it is to be regretted that the time interval between donors and volunteers, which varied from two to six hours, could not, under the circumstances, be shortened.

"Control cultures of the unfiltered secretions yielded a high percentage of *B. influenzae*, hemolytic streptococci, pneumococci, and Gram-negative diplococci. Cul-

tures of the filtrates were invariably sterile.

"In no instance was a clinical case of influenza produced.

"Three of the volunteers who received unfiltered nasopharyngeal secretions became ill with acute lacunar tonsillitis."⁴

Not only were these experiments substantially negative but also a considerable number of attempts to infect man by other workers and groups, as related by Mote⁵ gave somewhat similar results.

By common consent, rather than by any convincing evidence, we assume that influenza, the common cold, and perhaps other infections of the upper respiratory tract are conveyed by droplets of secretions expelled by sneezing or coughing and related activities or by objects contaminated by these secretions, such as food and drink and utensils used in eating and drinking.

Many observers have suspected that influenza in man might originate in infection from animals. According to Mote⁶ it was believed by some in 1918 that swine influenza had a relation to the human disease. This swine infection has been shown to be due primarily to a virus, but that for the full flowering of the pathogenicity this agent must be associated with a hemophilic bacterium called *Hemophilus influenzae suis*.

INFLUENZAL PNEUMONIA

This seems to be an appropriate place to say the little that needs to be said on the etiology of influenzal pneumonia, the complication that furnishes the bulk of the deaths. It usually is stated that it is due to pathogenic bacteria chiefly streptococci, pneumococci and Pfeiffer's bacilli acting as secondary invaders. My confidence in this view was greatly shaken early in the 1918 influenza epidemic when I saw many cases come to autopsy which failed to show the ordinary gross findings of either bronchopneumonia or of the lobar type. As an upshot of doubt on this point the Public Health Service engaged Professor LeCount of Chicago to conduct a series of autopsies with the special point in mind

of determining whether the influenzal pneumonia differed appreciably in gross pathology from that prevailing at other times. In due time, LeCount⁷ reported on about 200 autopsies. He noted among other things the "bloody fluid in subpleural lymph spaces", "the opaque reddish brown places", and that influenzal pneumonia "differs from bronchopneumonia in its predilection for the periphery of the lungs and extent to which the inflammation is hemorrhagic." LeCount's findings led him to declare that "It is difficult to believe that a disease with so many distinctive features and affording, as it has, so much of novelty in pathologic anatomy can fail to possess a corresponding definite etiology."

VIRUS STUDIES

Smith, Andrewes and Laidlaw,⁸ on the basis of immunization tests, concluded that swine influenza and human influenza viruses studied were immunologically related but not identical. A whole new field was opened by these workers who, in 1933, carried out their studies at the National Institute for Medical Research in England using the ferret as the experimental animal. The ferret, at that time, an unusual laboratory animal, was doubtless chosen because it had been employed with very fruitful results by a related group of workers in the study of canine distemper. They were able to infect this rodent with human influenza of the type then prevailing in Great Britain. It might be an open question as to whether they were dealing with epidemic or endemic disease. Be that as it may, this infection, after adaptation to the ferret, was transmissible to mice.

The influenza virus can be adapted to mice by previous passage through a series of ferrets but even then must be passed through a series of mice before the lesions become readily recognizable and pathogenicity fully developed. This work, and the mass of data flowing from the original study, seems to show that human influenza is due to a filtrable virus.

Andrewes, Laidlaw and Smith⁹ recovered the specific virus from epidemic influenza

but not from common cold or sporadic influenza.

Horsfall¹⁰ reviews the influenza problem up to November 1940. He concurs with most workers that a virus has caused many epidemics of influenza in recent years but insists that "there is equally good evidence that this virus has not caused all epidemics of the disease during the same period."

Horsfall even questions whether the virus discovered by Smith, Andrewes and Laidlaw is the most important or most frequent cause of influenza. Those directly concerned in the problem now designate the virus described originally by the British workers mentioned as influenza virus A, and propose succeeding letters of the alphabet for other viruses if (or when) they are established.

The workers who agreed on this nomenclature which was announced at Detroit on October 10, 1940, did not have long to wait before adding the second virus in the series. In the November 1, 1940 issue of *Science*, p. 405, Thomas Francis¹¹ of the Rockefeller Foundation, announced the discovery of influenza virus "B". In 1936 Francis had isolated from influenza cases a virus that did not correspond to the original "A". Early in 1940, he isolated a virus from influenza in North Carolina and later in the same year a strain was isolated from cases at Irvington on the Hudson (New York State). Through immunologic methods these strains of virus gave evidence of identity, but as mentioned before were different from virus "B".

Horsfall and Lennette¹² found immunologic differences in viruses isolated in 1933 and 1934 when compared with those isolated in 1939.

Even among different strains of "A" virus there are antigenic differences and Horsfall¹³ doubts that a strain of virus "A" will completely immunize a person against another strain of "A". He also states that "at least 95 per cent of human beings have demonstrable antibodies." These antibodies are increased temporarily by an attack of influenza.

A not very surprising finding has been that a high proportion of contacts of influenza cases developed subclinical infections as demonstrated by the increase of antibodies. Dr. Horsfall regards these inapparent infections probably of more importance in spreading the disease than cases of fully developed clinical influenza.

Two very remarkable facts emphasized by Mote¹⁴ are: (1) "the extreme pneumotrophic character of the virus" and (2) that the disease can be established only by the respiratory route.

Not only has influenza virus been conveyed to laboratory animals but it has been cultivated in tissue culture and in the chick embryo.

A disconcerting finding from the point of view of laboratory workers was that certain stock animals were found to present evidence of previous, apparently natural infection with influenza virus.

A most remarkable development according to an editorial¹⁵ has been the discovery of a vaccine made from a combination of influenza virus and canine distemper virus that immunized ferrets against three immunologically different strains of influenza virus.

The investigators, Horsfall, and Lennette¹⁶ tested the vaccine on human volunteers with the result that it produced an increase of influenza neutralizing antibodies, but so far as I know, up to the present the vaccine has not been put to what we might call a field test—exposure of vaccinated persons to epidemic influenza. The same workers¹⁷ showed that there was no antigenic relation between canine distemper virus and human influenza virus.

Laidlaw, Smith, Andrewes, and Dunkin,¹⁸ were able to produce in the horse an influenza virus antiserum that had a modest degree of effectiveness in mice. They expressed caution in suggesting therapeutic value in man.

So recently as February 8, 1941, it was announced¹⁹ that the Surgeon General of the Army had appointed a board for the investigation of influenza and other epi-

demio diseases in the army—an illustration of how important the military medical authorities consider the subject.

Up to the present, the determination of the etiologically related virus cannot be employed in a practicable fashion in making a diagnosis in an individual case, or indeed of the type of a prevailing epidemic unless one has better facilities than most communities furnish.

The measures that have been taken in trying to curb influenza have failed to throw light on etiology in the strict sense, or on the mode of transmission. Vaccines against alleged etiologically related organisms, masks and other means have failed to show any benefit. I have seen a health officer very enthused over a vaccine, and another even more enthused over the use of masks, but a little study showed that in each case the preventive measures were taken about the fifth week of the epidemic. In small cities it is at this time that the disease reaches its height and the number of cases rapidly falls thereafter.

CONCLUSION

When one views the accomplishments of recent years he is impressed with the extent and variety of the studies and the suggestive findings, but he will be even more impressed by the lack of any data that will be helpful to the clinician or to the Health officer, but we can take satisfaction that some of the rubbish of misinformation has been cleared away.

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OTORHINOLARYNGOLOGIC ASPECTS OF INFLUENZA

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The most important thing in the world to Cyrano de Bergerac was his nose. This enormous bulbous nose defeated him in love and its ridicule more than once led him into mortal combat. Today, since the nose is the open door to influenza our noses still lead us into mortal combat.

According to Gay the earliest account of an influenza epidemic has been recorded in the classical writing of Livy in 412 B. C. The first pandemic began in Sicily in 1510. Since then pandemics have occurred at intervals varying from two to 170 years.

Influenza is undoubtedly spread by human agencies but may also be transmitted from man to animals or vice versa. Transmission experiments, which have shown that influenza-like disease can be transmitted by instillation of infected nasopharyngeal secretion into the respiratory tract of a susceptible host, indicate the existence of the virus in the respiratory tract of the infected individual. The disease is therefore generally believed to be transmitted by droplet infection or by direct contact. Accordingly the disease is transmitted more rapidly in crowded centers and is spread more rapidly by modern methods of transportation. Likewise, increasing density of

world population and speedier transportation have resulted in increased frequency of pandemics.

During the epidemic of 1918 to 1920 workers in chlorine, iodine and sulphur dioxide plants apparently had a high degree of immunity. This led to the chlorine treatment of colds, which, however, had short vogue. Its apparent success was probably due to the production of a defensive exudate rather than to any bactericidal action.

Influenza is like a fuse touching off the fatal powder keg of serious infections resulting from secondary invaders. In itself, influenza causes little or no mortality. Death comes from its complications.

Prevention is attempted by isolation and quarantine of patients during the early stages, as the most infective period is probably during the early clinical manifestations of the disease. The wearing of gauze masks for protection and avoidance of crowds are desirable.

EAR COMPLICATIONS

A rather unusual, but when present, the most nearly pathognomonic manifestation of the disease, is otitis externa hemorrhagica. According to Politzer, this condition commences with moderate pain, tinnitus and slight deafness and is commonly seen during influenza. Examination of the ear shows one or more dark blue, elongated, hemorrhagic blebs in the cutaneous lining of the osseous external auditory meatus. These vesicles have thin walls and may rupture from the touch of a cotton applicator. They should be opened with a sharp paracentesis knife and the canal dusted with a little boric acid powder. The condition may be associated with acute purulent otitis media in which event the membrana tympani should also be opened.

An aural condition which I have rarely observed, but which I believe to be generally associated with influenza, is an intact, black ear drum. The ear drum itself is probably not affected but appears to be black because one sees through it, the purplish appearance of the ecchymotic mucosa of the middle ear. These conditions appear suddenly, are associated with impairment

of hearing and generally resolve over a period of weeks.

As the cause of acute purulent otitis media and its complications, influenza ranks close to the worst offender, measles. The pathology here is the result of secondary invaders such as *Streptococcus hemolyticus*, staphylococci and pneumococci, for which the soil has been prepared, and fertilized so to speak, by the devitalizing systemic and local effects of the virus of influenza.

The toxemia of influenza may affect the internal ear and produce nerve deafness.

The nose is generally regarded as the portal of entry for influenzal infection. Coryza is generally one of the earliest manifestations of influenza but may occasionally be entirely absent. St. Clair Thomson believes anosmia to be a very frequent sequela of influenza.

SINUS COMPLICATIONS

Paranasal sinus infection is common after influenza but infection here is probably never due to the actual agent of the disease, but to secondary invaders. Sinus infections occurring during epidemics of influenza seem particularly severe and more likely to lead to chronic sinus infection than like infections incurred during non-epidemic years. This increased activity may be due to lowering of the general vitality due to influenza, or it may be that the virulence of the secondary invaders is enhanced in association with influenza.

The treatment of sinus infection following influenza is no different from that used in other sinus infections of respiratory origin. As pointed out by Furstenberg, emphasis should be placed on the conservative, non-surgical treatment of all acute sinus infections. Surgical disturbance of acute sinus infection may cause dangerous spread of the infection and may favor the development of chronic sinus disease. If the condition does not resolve under conservative non-surgical treatment, it can be more safely treated surgically when it has reached the subacute stage.

NASOPHARYNGEAL AND LARYNGEAL COMPLICATIONS

The nasopharyngeal and pharyngeal appearance in influenza is generally that of the familiar "grippal throat." The nasopharynx is red and there is a red streak extending down into the pharynx behind each posterior faucial pillar. The duration and severity of the dysphagia is often out of all proportion to the local appearance of trouble, the sore throat sometimes lasting for weeks. At times the pain in the throat is undoubtedly due to myalgia or neuritis. Acute tonsillitis may occur during influenza, but pharyngitis is more typical.

Acute laryngitis and laryngotracheitis are common complications of influenza. In the recent epidemic some of these cases have been unusually severe.

Paralysis of the tensors of the cords may be a complication of influenza, as may also be adductor paralysis of one or both cords.

CONCLUSION

And now a tribute to the boys in the back room. In the words of Winston Churchill, "never in the world have so many owed so much to so few." He referred to the Royal Air Force. I refer to the laboratory workers in medicine. A widespread and disabling epidemic of influenza in a country at war could change the history of the world. We have reason to believe that work now in progress, on the production of immunity to influenza may materially lessen the mortality and morbidity from this scourge of mankind.

THE TREATMENT OF INFLUENZA

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AND

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It is well to acknowledge in the beginning that we have no satisfactory prophylactic or specific therapy and that in both fields our efforts are largely empirical.

PROPHYLAXIS

In prophylaxis, the avoidance of exposure to the disease is the first consideration. Especially in periods of epidemic, the individual may benefit by not visiting the

sick and by staying away from gatherings. The isolation of patients is of major importance, particularly during the early period of the disease when infectivity is strongest¹. In the home, the patient should be placed in charge of nurses or one or more members of the household assigned to the care of the case. Even then it is well to give the patient a bell and for the attendant to come in only when needed and not remain longer than necessary. The wearing of masks by nurses has been largely discontinued, but the patient should always be instructed as to the importance of properly covering the face when coughing or sneezing. This is one of the few diseases in which an excellent state of health does not seem to insure any appreciable immunity. Measures for building up resistance have been advocated through the generations but their value is still problematical. This refers particularly to outdoor exercise, cold baths, and other so-called "hardening" processes.

At one time vitamins were enthusiastically advocated, especially vitamin A, and this product received the synonym of the anti-infective vitamin. It is highly probable that a vitamin deficiency may render one more susceptible to the disease, but it is not thought today that any excess of vitamins above the normal will lessen susceptibility. The value of vaccines is still a moot question. Reimann² quotes the work of English investigators suggesting that the specific immune bodies in the blood are increased even to some extent against the influenza viruses slightly different serologically from the strain used in the antigen. Diehl³ feels that both the stocks and autogenous products have some value. Cecil⁴ has stated that they apparently have a degree of efficiency not only in preventing infection, but especially in reducing the incidence of complications such as pneumonia, resulting from the secondary invasion of bacteria. Our own experience agrees with that of Cecil. Many state frankly the opinion that they have no value⁵. Among the arguments used against vaccines are: that influenza is a virus dis-

ease and bacterial vaccines, therefore, do not convey a direct immunity, and that the period of immunity even from the disease is comparatively short and somewhat imperfect.

The prophylactic use of serums has received much attention. They are especially recommended in the presence of an oncoming epidemic⁶. Shope⁷ has found that the virus of influenza can be neutralized by the serums of about half of all adults, and Francis⁸ has called attention to the persistence of immunity conferred by an attack of influenza and believes that it will influence the degree of severity of future infection.

GENERAL MANAGEMENT

In therapy proper, rest in bed seems to be the only measure that meets with universal acceptance as having a definite influence on the course of the disease. LeBlanc and Wellborn,⁹ in a carefully controlled series, found that it favorably influenced both the duration of the disease and the incidence of complications. Walker⁵ feels that it not only benefits the patient directly but that the incident isolation lessens the spread of the disease and reduces the chance of the patient's acquiring other infections. Bed rest should continue well into convalescence, the duration depending upon the severity of the process and the length of the febrile period. Three days of normal temperature has been suggested for a minimum requirement¹. Others have advocated that the patient remain in bed after permanent normal has been reached for a period half as long as the period of the preceding fever.

The patient should be kept comfortably warm and in a quiet but cheerful environment, entirely free from domestic care and business responsibilities. Reading should be prohibited during the febrile period and reduced to a minimum during convalescence. There is an old saying that "He who reads with influenza spends the next six months with the ophthalmologist." The room should be sufficiently ventilated, yet exposure to drafts or chilling carefully

avoided. Some have advocated that the air be not only warm, but moist¹, the moisture to be provided by a vessel of hot water or by any other convenient means. We have never tried this plan.

As the respiratory tract is irritated, smoking would seem inadvisable⁵. We have a clue here of the protective processes of nature, as most patients are robbed of all desire for smoking during the disease. A daily sponge bath is almost universally employed. We do not approve of the alcohol sponge so often advocated. In protracted illness, alcohol may be applied to the contact surfaces where it is used to lessen perspiration and harden the skin. We would not wish this effect on the body as a whole. Alkaline mouth washes and gargles are often recommended, but, as alkalis tend to lessen the secretion of the salivary glands they would seem to be contraindicated. If a mouth wash is used, some acid preparation such as liquor antisepticus (N.F.) would seem to be best.

DRUG THERAPY

The time-honored initial purgative is falling into disrepute. Alvarez¹⁰ has found that it delays favorable progress. Our own opinion is that it is distinctly contraindicated. "The patient may be kept awake when he should be sleeping; exposed to cold when he should be warm and protected; disturbed when he should be at rest, and his vital resources depleted when they should be conserved."¹¹ Should there be any special indication a mild laxative may be administered in the early morning.

As previously stated, we have no specific therapy. A multitude of agents have been suggested as having more or less value. Glazer¹² expresses the common opinion when he says "The duration of pyrexia and hospitalization in influenza seems to be almost self limited and influenced little if any by therapy." Walker⁵ remarks that "Treatment consists mainly of relief of symptoms." Competent clinicians have divided their cases into groups, applying various therapeutic measures and carefully observing the results. No appreciable influence on the course of the disease has

been demonstrated in these controlled studies.

Belladonna (and atropine) have been recommended. The consensus is that they are contraindicated. Recently a number of patients were treated with merthiolate sprays and excellent results reported, but another group tried this on a fairly large series, using one-half of their clinical material as controls. The conclusion was that it had no value as a therapeutic measure⁹.

Quinine has been used for influenza as for most other ills. No specific value has been demonstrated and against its use is the argument that it tends to congest the auditory apparatus, contributing to middle or internal ear complications.

Most of the coal tar antipyretics have had their advocates. No specific value has been demonstrated and it is highly probable that if these are continued after the development of pneumonia, they may contribute to an unfavorable outcome.

Diehl³ has presented interesting data on the use of codeine and papaverine and this plan of therapy is still being followed by many. Codeine alone or with acetylsalicylic acid is the main reliance in the control of pain and may have some favorable influence on the nasal congestion. Acetylsalicylic acid probably has no value in influencing the progress of the disease but it can do much towards relieving discomfort. We advocate small doses (5 gr.) repeated when necessary for discomfort and promptly discontinued upon the first evidence suggesting pneumonia. It is best administered in fruit juice. When given with an alkali, such as sodium bicarbonate, chemical dissociation takes place and the patient really gets salicylic acid and sodium acetate. Alkalinization is favored by many and there is much clinical datum in its favor. This form of treatment has been extensively exploited by patent medicine manufacturers and much misinformation is being broadcast over the radio networks.

The sulfonamides have been used extensively. The consensus is that sulfanilamide has no influence especially upon the virus

stage of the disease.¹³ Sulfathiazole seems to offer more promise, but its status has not yet been established. The percentage of unfavorable reactions would seem to contraindicate its routine employment.

PERSONAL EXPERIENCES

We wish to offer, for what it may be worth our experience with our last 168 influenza patients at the Southern Baptist Hospital in New Orleans. These were all student nurses. It is the rule of the institution that a nurse is either on full duty or is a regular hospital patient. We had an opportunity, therefore, to follow these patients under exceptional advantages. This study covers five epidemics, during each of which there were about 25 to 35 cases; it also includes some sporadic cases that occurred at other times. The series probably embraces some cases of common cold, though we made every effort to exclude these as far as possible. The nurses are instructed to report to their superiors on the first appearance of symptoms, and their cooperation in this has been almost perfect. They are immediately put to bed in the institution and given the benefit of the full plan of treatment, and are kept in bed until they have had a minimum of one full day of normal temperature. In severe cases the period of rest is naturally prolonged. They are then sent to the nurses' home and do not return to duty until the following day. They are not assigned to night duty for at least a week and during that time they are not permitted to go out at night. The following order is entered on their charts: "Rest in bed; no company; diet as ordered; sodium bicarbonate 1 gram, sodium citrate 2 grams, every two hours when awake; acetylsalicylic acid 0.3 gram, when needed for discomfort; codeine sulfate 0.03 gram, is added if there is much pain." If there is any sore throat, 5 per cent solution of silver nitrate is applied once daily. Should there be sufficient rhinitis to interfere with comfortable breathing, a glucose solution of ephedrine is instilled into the nares once or twice a day. Usually, if used at all, this is employed only at night to induce respiration

sufficiently normal to permit sleep. A laxative or enema is used only if there is constipation or other definite indication.

The patients are instructed not to blow the nose with violence, so as to lessen the tendency to sinusitis or otitis media. They are instructed to cover the face properly when coughing or sneezing.

The alkalies are administered in seltzer water or dry ginger ale.

Unless contraindicated, the patient is given a liquid diet when the temperature is under 100° F. Water and fruit juices are given freely.

An analysis of these 168 cases indicates an average duration of fever of 1.94 days; average hospitalization, 3.49 days; the longest period of hospitalization was 11 days. There was one relapse, the patient reentering the hospital after having been discharged. There was no proved pneumonia. Two patients showed high temperature, pulmonary congestion and other suggestive findings. These were given sulfathiazole and came to normal within twelve hours and, except for slight secondary elevations, remained normal. X-ray evidence was negative. The highest temperature was 104.6° F. (40.3C.); the mean temperature 100.6° F. (38.1 C.).

This plan of treatment is not presented as having proved specific value. The series is too small to justify our drawing definite conclusions, but we have felt that our results have been fairly satisfactory.

CONCLUSIONS

Influenza is largely a self-limited disease and there is no specific for either prophylaxis or treatment.

Rest and other measures of general care are still the mainstay of therapy.

Various remedial agents have been advocated, but they have not met the test of clinical experience.

A study of 168 hospital cases treated by a uniform plan is presented for consideration.

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DISCUSSION

Dr. H. L. Kearney (New Orleans): I would like to ask Dr. McCoy how the Public Health Service has managed to make such accurate predictions of influenza epidemics the past two years. They predicted an epidemic for last year and a larger epidemic for this year and our local experience has borne out the accuracy of these predictions.

Dr. L. C. Chamberlain (New Orleans): I just want to make a statement of an observation I made two years ago, which might interest Dr. McCoy and any dog lover. Everybody knows that I am a dog lover. I have lots of good dogs. My yard, apparently, was supposed to be infected with the distemper virus. I vaccinated those dogs that I have in the yard, year after year, without much result. Two years ago about this time of the year, just about the time that the camphor leaves began to fall, I noticed they accumulated in clumps in front of the kennels. A little later I went there one day and happened to brush some camphor leaves away from the front of the kennels and found three very large moist honeycombed spots, and through this dark moist mud was a sort of spawn; looked like spawn of mushroom, was alive with fleas, I decided then that the fleas were coming up out of the moist soil and bringing up, out of there either the virus that they had carried back with them or this virus was something that grew in the soil, and the infected fleas coming out of this place were infecting my dogs. I dug up the soil and for about ten feet in front of the kennels put concrete and I have not had any trouble since. I believe the infection was in that soil and the fleas were the carriers.

Dr. McCoy (New Orleans): In answer to Dr. Kearney's question, I would say that, so far as I know, such predictions are based on past experience; especially the observation that scattered

small epidemics of influenza, or influenza-like outbreaks, are likely to precede a major epidemic, sometimes by considerable time.

In respect to an epidemic predicted for the relatively near future, that I suspect is based on outbreaks of influenza, or a similar condition, somewhat widespread, that have occurred during the past winter, together with the often repeated observation that an extensive outbreak of influenza often occurs during and after a war.

THE MANAGEMENT OF FACIAL INJURIES*

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The majority of facial injuries resulting in distortion and dysfunction are produced as a result of accidental trauma. A relatively small number of types of accidents account for these and foremost among these are: Automobile accidents, falls, burns, explosions, gunshot wounds and injuries resulting from aircraft.

An analysis of defects resulting from these accidents shows that there are certain injuries which are peculiar to the specific type of accident encountered. Automobile accidents notoriously produce lacerated wounds, fractures and burns, whereas falls more commonly result in fractures and contused wounds. Burns, because of their specific mode of injury, produce large surface defects as a result of skin destruction. Large surface defects resulting from burns most frequently show dysfunction as a sequel because of contracture from the resulting scar. Explosions and gunshot wounds almost conformably result in lacerations and contused wounds in association with burns. Examination of gunshot wounds frequently reveals a complete loss of soft parts and bone. Injuries to the face from

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aeroplane accidents almost uniformly result in contused wounds, fractures and burns and because of the protection afforded the head by the aviator's helmet, a specific injury is commonly seen. As a result of the excellent protection afforded the aviator by his helmet these burns usually involve the tissues of the face from the brow down to the chin and extend backward to a point just anterior to the ear. Because of the specific area burned the most frequent complications noted are ectropia from injuries to the eyelids, atresia of the nostrils and distortion of the mouth.

Defects following accidental trauma must be considered as immediate or late. An accurate diagnosis is essential to correct repair in either group. This is of particular importance in caring for injuries in the very early stage while the wound is still to be regarded as contaminated, for irreparable complications follow acute wounds which are improperly treated. One should develop a systematic examination aimed at accurate diagnosis of all disturbed anatomy. This procedure can be developed with an established routine of examination in a manner so that all pertinent information regarding these changes may be determined accurately and in a surprisingly short length of time. If one palpates the bony prominences which form the orbital rim, palpating the two sides simultaneously for comparison, gross changes in bony anatomy should be determined with a fair degree of accuracy. It is highly important that these be diagnosed and corrected immediately, otherwise distressing complications follow.

An undiagnosed fracture involving the supra-orbital rim, which is permitted to go uncorrected, will usually heal in a mal-aligned position giving not only defects of contour but also chronic frontal sinusitis. Defects along the inferior margin of the orbital rim involving the floor of the orbit will frequently result in displacement of the floor producing diplopia. If this type of fracture is corrected immediately no further complication need follow; however, if this same displacement of the floor

is permitted to go uncorrected permanent diplopia may follow. The correction of this is most difficult and frequently involves a rather formidable surgical procedure designed to build up the floor of the orbit by means of a cartilage implant. When once diplopia is established for any great length of time and bony fragments have healed in a displaced position these defects are extremely difficult to overcome and the usual result obtained will fall short of complete satisfaction.

FRACTURES OF THE NASAL BONES

Fractures of the nasal bones require a thorough examination. One can frequently determine by palpation and applied pressure the existence of a nasal fracture, which may otherwise be overlooked by an x-ray examination. It is a reasonable assumption to regard any blow which is sufficient to fracture and displace a nasal bone as one which would transmit a direct force to the septal cartilage. Too frequently this impact to the septal cartilage is sufficient to fracture or dislocate it from its upright position and thereby alter its relation with the vomer. If this fact is appreciated sufficiently to prompt a thorough examination of each vestibule, one will discover in a fair number of cases that the cartilage of the septum is found to occupy an oblique position in one or the other vestibules. It is obvious, therefore, that the correction of a nasal fracture should include the realignment of the septum as well as the bony framework of the nose in those cases where there has been a concomitant injury to the septum. The routine which is being used so frequently of regarding nasal fractures as simple displacements which can be corrected by the application of any type of forceps at hand, is fraught with serious possibilities. Because nasal bones are delicate and of a fibrous nature it is important that their displaced fragments be approximated accurately, otherwise the bony framework will heal in a mal-aligned position which will be reflected in the contour of the soft parts. This correction can best be carried out by special forceps designed specifically for this purpose. Forceps of

this type are designed in pairs, since it is necessary to simulate the normal anatomic curvature of either side with its respective forceps. When using forceps made in this fashion the respective nasal bone may be grasped firmly and gently and adjusted with a minimum amount of trauma. The proper type of forceps for adjusting the septal cartilage should be designed with broad, flat blades, which do not oppose on complete closure. This permits gentle manipulation of the septal cartilage without permitting too much pressure on the mucosa and underlying cartilage. If a fracture or dislocation of the septal cartilage has occurred along with a fracture of the nasal bones, it is imperative that correction of the mal-aligned septum should follow, otherwise healing will occur with the cartilage in a displaced position. If a dislocated septum heals in an uncorrected position sufficient blockage of the airways may result subsequently to produce a chronic sinusitis. This complication may require a submucous resection for its correction.

FRACTURES OF OTHER FACIAL BONES

Fractures of other bones of the face are important since they may result in an alteration of contour or dysfunction. A depressed fracture of the malar bone which goes unrecognized not infrequently results in a defect of that side of the face which produces marked asymmetry. If the fracture is sufficiently severe it is not uncommon to note a disturbance in normal drainage of the antrum which may be sufficient to produce chronic sinusitis. Correction of this defect, immediately following the accident or before healing occurs, may be satisfactorily accomplished with relatively little difficulty. If permanent healing occurs then correction is obtained through the compromise of remolding contour with a suitable tissue transplant, usually cartilage. Refracture of a defect of this sort would entail the performance of a hazardous procedure which would certainly subject the patient to an unjustifiable risk. The same is true with fractures involving the zygomatic arch. An examination to determine

the existence of one of the two last mentioned fractures can be quickly and accurately made by palpating the surface of these bones. During this examination any notable depression may be determined. If the fracture is massive or comminuted one can frequently elicit bony crepitation. Variations in contour, when comparing one side with the other, may be elicited unless sufficient time has passed to permit the development of too much edema.

Occasionally one encounters an extensive fracture involving the entire upper jaw, where the upper maxilla is completely separated. The bone may or may not be displaced. By gently grasping the front teeth or alveolar ridge, with three fingers, one can apply sufficient pressure downward and laterally to determine the presence of such an extensive fracture. We have seen a diagnosis made of an extensive fracture of the upper jaw by this process which was overlooked following an x-ray examination. It is obvious that a fracture of this sort should be recognized immediately in order that complete correction be effected. Otherwise a displacement which would probably follow a fracture of this type would completely alter the facial contour of the individual and permanently produce mal-occlusion of the teeth. This latter defect would in all probability interfere with the normal open bite. Early diagnosis is imperative in order that correct reduction follow. A variety of methods may be required in the maintenance of proper position following satisfactory reduction of these defects. They are always individual problems which must be worked out in each instance to conform to the requirements of each specific case.

Fractures of the mandible are equally important and may be quickly and accurately diagnosed by means of pressure applied to the teeth and body of the mandible. If the jaw is firmly grasped in the middle and a downward pressure is made in a gentle fashion one may determine when limitation of motion exists. Further examination may lead either to the established diagnosis of a dislocation or a fracture of



Fig. 1A. Photograph showing extensive lacerated, contused wound of the face. Note the forehead flap which results from the undermining of the skin and soft tissues, extending from the temporal region to the midline of the forehead. Also note the numerous lacerations over the nose involving skin and cartilage.



Fig. 1C. Lateral view showing healing by primary union.

one or both condyloid processes with or without displacement. One may further ascertain from this maneuver whether there is crepitation or abnormal motion on one or both sides. Applied pressure along the horizontal ramus of the mandible frequently serves to give information relative

to a fracture at this site and in some instances diagnosis of a fracture of the perpendicular ramus is made. Fractures and dislocations of the mandible should be diagnosed early and reduction should follow immediately, otherwise mal-occlusion of the teeth may result. These commonly heal with a partial fixation of the jaw which may be associated with a definite limitation of the open bite. Correction of the last mentioned defect entails a formidable operative procedure, as in some instances it is necessary to sever completely the mandible through the perpendicular ramus in order that correction may follow.

PLAN OF REPAIR

In order that a plan of repair of facial defects be formulated it is essential that an accurate diagnosis be made. This should take into consideration not only the injury which has resulted from a given lacerated or contused wound but also an accurate estimate of any tissue loss. This information is necessary in formulating a plan of repair as well as in making a prognosis. The location of a wound may serve to modify a given procedure. A lacerated wound associated with the complete loss of a small amount of tissue may be found in an area where there is considerable amount of loose tissue along with an unusual amount of skin relaxation. Here a satisfactory closure may



Fig. 1B. Photograph showing primary healing following a simple debridement which consisted of thorough cleansing with warm water, white bar soap and sterile cotton.

be accomplished by direct approximation of the wound margins. The same wound found in an area where there is less relaxation of the skin may require the shifting of a pedicle transplant in order to effect closure without tension or disturbance of blood supply. If one encounters the same wound over an area where there is practically no surplus skin, repair may require a skin graft of suitable type.

It is, of course, axiomatic that complete coverage of all surface defects is a basic requirement in obtaining primary healing with a minimum amount of scar. Unless this is accomplished at the time of primary repair a given loss of skin and subcutaneous tissue will result in a defect which must heal by secondary intention. This, of course, results in prolonged healing which is associated with varying amounts of infection. Complete coverage of all surface defects is imperative in wounds where bone has been exposed, otherwise osteomyelitis may follow. Bone may be exposed at the site of a compound fracture and yet if an adequate debridement is done this wound may be satisfactorily closed and healing by primary union will follow. If there has been a skin loss over exposed bone the defect should be covered by a half-thickness skin graft or pedicle skin transplant. One should always aim to effect healing in this type of wound by primary union and in so doing prolonged infection and osteomyelitis with more bone loss is obviated. It is frequently advisable to graft such an area in order to obtain primary healing, even though one knows at the time that subsequent repair will be necessary if satisfactory cosmetic results are to be obtained. The difference between this type of repair and one which results in healing by granulation is usually a matter of months and frequently is the difference between a satisfactory end result and a result which must be accepted as an unsightly compromise.

One frequently sees extensive wounds over the face where considerable loss of soft tissue has occurred. In planning a program of repair one is frequently tempted to seek closure which will give a

satisfactory cosmetic result despite the abnormal tension which is produced. These wounds are frequently in association with defects which extend through the entire thickness of the cheek and involve the buccal mucosa. Where there has been a considerable loss of tissue associated with a massive wound one should always constrain the desire to approach satisfactory cosmetic closure at the time of primary repair in the event that too much skin tension is evident. Blair and Brown have pointed out the importance of this and have advocated the wisdom of approximating skin margins with the corresponding margins of buccal mucosa, even though this gives an unsightly defect in the cheek at time of primary repair. To accept this fundamentally sound principle of primary closure frequently results in saving considerable soft tissue and bone. The problem of reconstruction, as a result of this applied principle, is frequently diminished and the time of hospitalization and amount of suffering proportionately decreased. It is far better to have a patient endure an unsightly defect for a relatively short length of time, in order to conserve tissue which might otherwise be lost, than to approximate a successful closure which is subsequently lost because of excessive tension.

The solution of the problem of surgical repair may be trying where one finds a considerable portion of tissue lost or a part, which has been almost completely severed; one may see an entire nose detached except for a small pedicle attached at one or the other lateral borders. The immediate problem is whether one should attempt to save the part in question or assume that the remaining blood supply is inadequate and forfeit the part by extirpation. Even though these remnant pedicle attachments are exceedingly small one should never assume that their potential blood supply is inadequate. A thorough debridement by gentle cleansing with soap and water should follow and subsequently all borders should be approximated in a meticulous fashion with minimal trauma. Frequently one will be amazed to find that these parts have

been saved as a result of careful treatment. Certainly little is to be lost in making this effort.

GENERAL TREATMENT

The treatment of facial wounds is modified by a number of factors. One must primarily consider the general condition of the patient and modify all treatment accordingly. Another factor which modifies repair is the interval which has developed between the time of accident and the time of treatment. A patient seen immediately following an accident, where the time interval has been eight hours or less, presents for treatment a wound which must be considered as contaminated. Treatment here is actually more direct and less complicated than that afforded a wound which has already become infected. These wounds may be satisfactorily converted from a contaminated state into a surgically sterile one, if properly debrided, and healing here should result in primary union with a minimal amount of scar. Wounds which have existed in a contaminated state for longer than eight hours should be considered infected and must be treated over a prolonged period of time in order to aid nature in overcoming infection. The time interval here is always prolonged and healing proceeds by secondary intention, a process

which invariably ends with the formation of excessive scar. Treatment of late facial injuries is commonly the treatment of complications which have resulted from healed wounds, where there has been considerable loss of tissue or excessive production of scar from infection. Scar of this sort frequently causes unsightly defects or dysfunction.

Primary consideration should always be directed towards the general condition of the patient. An examination made to determine whether or not the patient is in the state of shock or whether shock is apparently imminent should be made immediately. If evidence is obtained which indicates that the patient is in shock or which suggests that shock is imminent then all effort should be directed toward the treatment of this condition. The wound should be a secondary consideration until this danger is overcome. One exception to this, however, should be the splinting of any existing fracture in order to avoid further shock from movement of the parts. Shock resulting from trauma should be treated by the usual method: Relief of pain by opiates, the application of heat, the administration of infusions of glucose and saline, along with transfusions of whole blood and the administration of any indi-



Fig. 2A. Saddleback defect of nose following trauma with subsequent infection and loss of cartilage.



Fig. 2B. Photograph following restoration of the nasal bridge by a cartilage implant.

cated stimulation. One should not lose sight of the importance of protecting the patient against invasion of organisms producing tetanus and gas gangrene. Whereas it has been repeatedly shown that the best treatment for either tetanus or gas gangrene lies in prevention, Ogilvie points out that prevention is best accomplished with the combination of specific prophylaxis along with an early excision of the wound.

LOCAL TREATMENT

If the general condition of the patient is satisfactory and there has been no evidence of shock or appreciable hemorrhage one may safely proceed with the local treatment of the wound. The ultimate aim in a recent wound is primary healing with a minimal amount of scar and lost function, in association with the best possible cosmetic result. It has been repeatedly shown by Koch, Mason and numerous other workers that satisfactory primary healing in a contaminated wound may be obtained but that primary healing is conditioned on the basis of a satisfactory debridement. Necessary fulfillment of the requirements for converting a contaminated wound into a surgically sterile one is the careful extirpation of all non-viable and severely traumatized tissue. It is axiomatic that the number of bacteria present over the surface of a given contaminated wound is relatively small during the contaminated stage or for the first six to eight hours. These bacteria are present on the surface of the contaminated wound and they actually show contact rather than actual invasion. During this period of time one can, by cleansing the surface of the wound in a manner so gentle that no trauma is inflicted to the wound, remove bacteria mechanically. A satisfactory debridement consists of gentle but thorough cleansing of the parts with sterile cotton, non-irritating white bar soap and luke warm water. In following this procedure one can effectively cleanse the wound and convert it into a surgically sterile one as effectively as by any other method. Other methods directed towards the same end which imply the use of greater force frequently impart too much trauma to the

wound. The use of irritating antiseptics is to be avoided, since they impart considerable trauma to a wound through chemical irritation. Also there is still considerable controversy regarding the efficacy of these antiseptic agents in actually destroying or reducing the number of bacteria. Perhaps one exception may be found in ether. Because of its excellent cleansing properties in removing grease, extensive fat debris and red blood cells, ether makes an excellent cleansing agent. Many wounds covered with grease are difficult to prepare adequately unless some solvent of this type is used. In combination with this property ether aids as a bacteriostatic agent and shows less injury to cellular tissue than many other chemical agents which are commonly used. At this stage it is highly important to remove all evidence of grease stains and tattoo marks from imbedded foreign material, which are in evidence. The complete removal of all visible evidence of imbedded foreign material may necessitate mechanical trauma in cleansing. Not infrequently the eradication of this material requires a brisk scrubbing with a stiff brush and in some instances it may be necessary to use minute dissecting instruments. This is justified here, however, on the basis that any remnant discoloration from foreign material which is permitted to remain at this time presents permanent markings which require much greater operative manipulation subsequently if correction is to follow. All non-viable or severely traumatized tissue, whether muscle, fascia or skin should be removed with the slightest amount of trauma. Extirpation by sharp dissection probably approaches the minimal trauma necessary.

Equally important with a thorough debridement is complete hemostasis. Effort should be directed to the production of a minimal amount of trauma and attention should be focused on the value of ligating blood vessels by means of a technic which dictates the inclusion of only blood vessels when ligatures are formed. An excellent material for ligation of blood vessels with minimal trauma is that of #80 white cot-

ton. One may ligate all necessary vessels with this material and by cutting the ligature at the knot a minute quantity of foreign material is required for effective hemostasis. Meade has shown that buried cotton sutures produce a minimal amount of foreign body reaction in the tissues.

One of the cardinal principles in satisfactorily closing a wound is the obliteration of dead space. This should be done without strangulation. It may frequently be necessary to obliterate some dead space by properly applied tension sutures passed through the skin to the depth of the wound and out through the skin on the opposite side. Tension on sutures of this sort should be directed towards the approximation of tissue borders without force. Wound closures should be directed towards the approximation of tissues in their normal anatomic relation, the muscle layers being held in normal apposition while fascia should be sutured to fascia. The final stage of closure consists of proper apposition of skin borders in a manner where anatomic relations are established. No distortion or abnormal tension should exist. Care should be exerted that skin sutures be used which are non-irritating and which create a minimal amount of local tissue reaction.

Edema follows the closure of all wounds and a suture which originally has been placed under slight tension will show increased pressure on skin during the subsequent swelling which is sure to follow. This invariably causes mechanical trauma to the skin surface and frequently irritates and cuts into the substance of the skin to a degree that produces suture cross marks which leave permanent scarring.

Following wound closure one can further aid in the obliteration of potential dead space by applying satisfactory pressure over the wound. Pressure should be applied which will be physiologic, thus avoiding an excess which might result in the diminution of blood supply to the part. Pressure can be satisfactorily applied over agents such as sea sponges or cotton waste. Either of these agents act as satisfactory materials for the reception of pressure and

serve to distribute evenly pressure when applied. Another important factor in satisfactory wound healing, which affords comfort to the patient as well, is that of splinting. Fixation by splinting is quite as important in injuries of the soft parts as in injuries of bone. One finds that healing is more rapid and satisfactory if this principle is followed. Not infrequently the difference between incomplete stabilization and actual fixation of a wound of the soft parts is delayed healing with unsightly scar.

SUBSEQUENT TREATMENT

Important is the early removal of sutures. One should remove all skin sutures at the earliest possible moment, starting as soon as the second day, attempting to have them completely removed within three to four days. This procedure is, of course, hazardous if a given wound has been closed under considerable tension and the procedure must definitely be modified by this state. One should always be careful in supporting wounds where sutures are removed early.

Defects of the face which have been unsatisfactorily repaired or which have healed following extensive infection frequently present extensive problems in reconstruction. These defects uniformly present unsightly distortion and dysfunction. Where an injury has been sufficient to cause the complete loss of an eye one commonly sees a depression defect along either the supra- or infra-orbital ridge. Associated with this there may be sufficient contracture to cause a marked ectropion and sufficient loss to tissue to produce an orbital cavity which is so reduced in size that it is impossible for the patient to carry an artificial eye. Repair here entails the implantation of cartilage for the correction of depression defects over either the supra- or infra-orbital regions. Subsequent to this it is necessary to extirpate all excessive scar found in the orbital cavity and establish a lining of the orbital cavity sufficiently large to permit the insertion of an artificial eye. In order to maintain the lining of a cavity following this procedure one

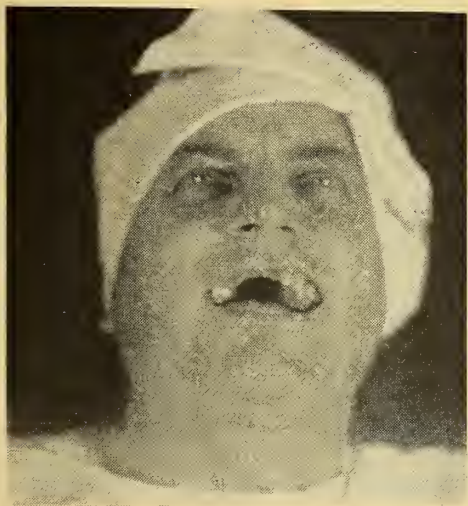


Fig. 3A. Because of a fixation of the lower jaw (in open bite position) as the result of fractures, this patient could neither open nor close mouth.



Fig. 3C. Photograph showing ability of patient to close the mouth in normal fashion subsequent to the above described correction.

must make a mold of the desired cavity from a plastic dental compound and cover this with a half-thickness skin graft removed from non-hair bearing skin. In applying the graft the skin surface should be applied to the surface of the mold and this in turn inserted into the newly reconstructed cavity. In this manner the skin is held in accurate apposition to the denuded surface of the reconstructed orbit so that adequate pressure may be applied to facili-

tate a complete take of the skin graft. It is necessary to keep the reconstructed orbital cavity dilated for a period of four to six months in order that contracture does not follow. After this time the desired size of the cavity is usually maintained and the artificial eye is worn with little or no difficulty.

Injuries which have caused the loss of soft tissues over the nose may result in complete atresia of one or both nostrils. When this occurs it is necessary to reestablish the normal opening of the involved vestibule and maintain this with a mold which is identical in size and shape with the newly established vestibule. Over this mold a half-thickness skin graft is applied and when the stent or mold is reinserted into the vestibule the graft is held in accurate approximation with all denuded areas in a manner which facilitates the take of the graft. Here again it is necessary to maintain complete dilatation for a period of approximately six months. If there has been a complete loss of the tip of the nose or a large portion of the nasal framework a complete rhinoplasty must be done in order to replace the missing tissue so that normal contour is reestablished. This reconstruction may be carried out by means of a single pedicle forehead flap which has been lined on the under surface by means of a



Fig. 3B. Following incision through the right perpendicular ramus of the mandible, with advancement of the lower jaw, the patient now shows normal movement of jaw.

half-thickness skin graft; in some instances it may be satisfactorily done by means of a tube pedicle transplant.

RECONSTRUCTION OF THE EAR

Not infrequently one sees the loss of a large portion of an ear and in some rare instances the entire part is missing. The complete reconstruction of an ear may be satisfactorily carried out by means of a tube pedicle skin transplant which contains sufficient cartilage to approximate the normal ear in size and shape. Some surgeons advocate the complete reconstruction of an ear by burying an adequate amount of cartilage beneath skin, subsequently the posterior surface is exposed and covered by means of a half-thickness skin graft. Where there has been complete atresia of the external ear, reconstruction entails the complete extirpation of all scar in order to reestablish the normal opening of the canal. Following this it is necessary to apply a half-thickness skin graft in the newly reconstructed canal over the surface of a mold of the part. Just as in other reconstructed cavities where skin grafts have been applied as a lining it is necessary to maintain complete dilatation for approximately six months.

Injuries at or about the mouth which have healed with an abundance of scar usually produce considerable distortion as a result of contracture. The basic principle here is again the complete extirpation of all scar necessary to permit the muscles and other soft tissue to resume their normal anatomic relation. This procedure commonly is followed by the creation of a sizeable defect, the surface of which must be covered either by a pedicle skin transplant or a skin graft; otherwise a similar distortion will result. In some extreme cases where the defect involves the entire thickness of the cheek, repair requires the implantation of a tube pedicle skin transplant which is identical in size and shape.

DEFECTS OF THE FACE AND SKULL

Because of a rapidly developing edema, fractures of the bony framework of the face and occasionally fractures of the skull are overlooked. Rarely fractures which have

been diagnosed are improperly reduced with the result that healing occurs in malposition. Fractures which involve the floor of the orbit commonly cause downward displacement. The usual complication which results is that of diplopia. Where this condition is diagnosed in the acute stage, correction may be satisfactorily carried out by elevating the displaced bony fragments. Unless the fracture is such that adjustment can be made by external manipulation it is usually necessary to elevate the floor of the orbit by gentle upward pressure applied along the roof of the antrum. This procedure can be carried out very satisfactorily, and following reduction of the bony fragment it may be held in place by means of a gauze pack. This relatively simple procedure not only obviates an unsatisfactory change in contour but also the distressing symptoms which go with diplopia. If correction is not carried out in the early stages, fixation with rapid healing occurs. Correction of the above defect, following healing of bone, entails the addition of cartilage, added to correct the defect in contour as well as the displaced orbit. This procedure must always be considered as a compromise procedure for it seldom approaches perfection. Diplopia can be greatly improved by this method but complete correction is extremely difficult.

Failure to correct a mal-alignment of the nose following fracture of the nasal bones is to subject a patient to a rather formidable operative procedure if correction is obtained subsequent to healing. Prior to healing, reduction of a nasal fracture to obtain correct alignment is a relatively simple operative procedure; in contrast to this, correction of this same defect after healing occurs, requires refracturing of both nasal bones along with a slight separation of the nasal bones in the midline. Not infrequently in late fractures which have healed with mal-alignment, a displaced septal cartilage has been overlooked which will require a submucous resection for the establishment of an adequate airway.

Defects of the skull following compound fracture with complete loss of sizeable por-

tions of bone, frequently manifest themselves as defects in contour which are unsightly. Repair in these instances may be accomplished by shifting a portion of the outer bony table, adjacent to the defect, from its original position to cover and protect the area where there was complete bony loss. This is a rather formidable procedure and for this reason replacement of loss of skull bone by means of a portion of celluloid, shaped to conform in size and contour with the defect is a much simpler procedure. Celluloid is molded so that its surface assumes approximately the normal contour of that portion of the skull and it is sterilized in such manner that it maintains this shape. At the time of operation the celluloid is cut to conform in size and shape with the resulting defect. It is then attached firmly in the desired position so that it acts as a surface covering for the exposed dura as well as a supportive framework to build out the normal contour of the skull at that site. The celluloid may be firmly attached by sutures, fixing it to the surrounding periosteum. The scalp is then tightly closed over the celluloid and firm pressure is maintained for several days. Little foreign body reaction is manifested toward this material and within a few weeks it is firmly adherent and immovable.

Loss of any considerable portion of the mandible demands replacement by means of a bone graft, otherwise muscular pull will tend to approximate the two ends of the bone to disturb the occlusion of the teeth. If loss has been at all considerable this produces malocclusion of the teeth; if seen in a deciduous patient the distortion is sufficient to prevent the construction of a satisfactory plate. Where there has been a bony loss it is advisable to maintain the mandibular rami to as near normal position as possible until healing of the soft parts occurs. One should permit at least three to four months' time to elapse before considering the implant of a bone graft. After an adequate time has elapsed, replacement of the missing bone can be satisfactorily accomplished by the introduction of a bone graft removed either from a rib

or the crest of the ilium. The graft which is adequate in size and shape is attached firmly to the corresponding ends of the rami of the mandible which form the borders of the defect. It is preferable to mortise the ends of the graft with the body of the mandible and to hold the ends in firm fixation by means of sutures of silver wire or kangaroo tendon. After firm healing has taken place one may remove the wire with little difficulty.

If an injury to the jaw has caused fracture with displacement of one or more condyles, one may find a partially dislocated jaw which is manifest by malocclusion of the teeth and marked limitation in the open bite. If correction of this does not occur in the early stages one may subsequently be forced to remove the offending bony fragment and find that the creation of an artificial joint is necessary. In some extreme cases it may be necessary to sever completely the perpendicular ramus of the mandible in order to bring the jaw into a forward position.

SUMMARY

Various types of facial injuries and defects have been presented. Their immediate treatment and subsequent reconstruction have been discussed.

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DISCUSSION

Dr. L. H. Strug (New Orleans): With the recent advances in the use of sulfonamides, I was wondering if Dr. Owens had had any experience with these drugs, in the treatment of acute wounds. It has been our experience that the use

of the sulfonamides and their derivatives in acute injuries has not been beneficial because it delays wound healing. I have not had much experience with face injuries, but I have had with other injuries, such as the hands. It has been shown that there is a definite tendency to delay wound healing. There has been a deposition of bloody serous material, cultures of which prove to be negative, a fair amount of tissue necrosis, and the granulation tissues resulting always seem to be unhealthy.

Another comment I might add in the treatment of acute facial injuries is the use of the nasal tube. Nasal feeding limits the motion of the nose and lips and thereby facilitates healing.

Dr. J. D. Rives (New Orleans): My reason as a general surgeon for entering into this discussion lies in the fact that we have in Louisiana less than a half dozen men trained in plastic surgery, all of whom are located in the larger cities, whereas we have a great many facial injuries, most of which occur in smaller communities and must be handled by whatever physician is most readily available. Consequently, it becomes necessary that every doctor, no matter what may be his specialty, should know something about the management of facial injuries. If these injuries are properly handled at the time they are first seen, plastic procedures will usually be unnecessary and even if required at a later date are likely to be much less extensive.

Dr. Owens has discussed debridement and quite properly has stated that in facial injuries it should consist chiefly of the removal of gross contamination rather than in the removal of tissue. In wounds of the face every bit of tissue that remains attached and has a chance of survival should be left in place. It is very easy to remove fragments of skin or bone but they may be very difficult to replace. The proper use of such fragments may make extensive plastic procedures unnecessary.

I wish to emphasize one technical point in the management of these cases that has been advocated by many authors, particularly Barrett Brown; namely, that the replacement of partially detached structures in their proper relation to each other can be done much more easily and accurately by pushing than by pulling. If, for example, a flap of skin and subcutaneous tissue is ironed out with the fingers from its base toward the other margin of the wound, as you would a piece of wet cloth on an ironing board, the projections of the ragged edge will tend to fall accurately into their proper places. If, on the other hand, you attempt to pull this tissue into place, you are likely to place a projecting piece of skin into the wrong notch on the opposite margin, with the result that when you have finished you may have one or more pieces left over. After healing has taken place, this inaccurate disposition of the flap will result in distortion and contracture, which may

require elaborate plastic procedures for their correction.

Dr. Neal Owens (In closing): I wish to emphasize the appropriateness of Dr. Rives' remarks relative to the saving of bits of tissue. Going further, I would like to emphasize too the importance, in some of the extensive wounds, of any attempt to arrive at a satisfactory cosmetic closure where there has been loss of tissue. It is frequently more advantageous to approximate the borders of a wound, leaving a gross defect at this time, than to attempt a forced closure which will approach a more satisfactory cosmetic result. This frequently results in strangulation with subsequent infection and loss of tissue. Many of these injuries go through the entire thickness of the cheek and as much as 2 to 3 centimeters of tissue are lost. Here it is better to approximate the borders of the buccal mucous membrane and the skin margins. In so doing one, as a rule, has less tissue loss and less secondary repair.

In reply to Dr. Strug: I have not used sulfanilamide in acute wounds. I feel that I would rather rely upon an adequate debridement than sulfanilamide.

THE THERAPY OF CEREBROSPINAL FEVER*

A COMPARATIVE ANALYSIS OF THE
THERAPEUTIC RESULTS IN 97 CASES FROM
CHARITY HOSPITAL OF LOUISIANA
AT NEW ORLEANS

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AND

RICHARD E. SELSER, M. D.†
NEW ORLEANS

Conflicting reports as to the therapeutic efficacy of single types of treatment of cerebrospinal fever have frequently appeared from different localities. Thus Hoyne¹ reported a 23.5 per cent mortality in 296 cases, Clyde and Neely² no deaths in 10 cases, and Gregory and his associates³ a 42.4 per cent mortality in 33 cases. The results are widely different, but antitoxin was used in all the cases.

The reason for the variation in the death rate in different epidemics and in the same epidemic at different times, regardless of

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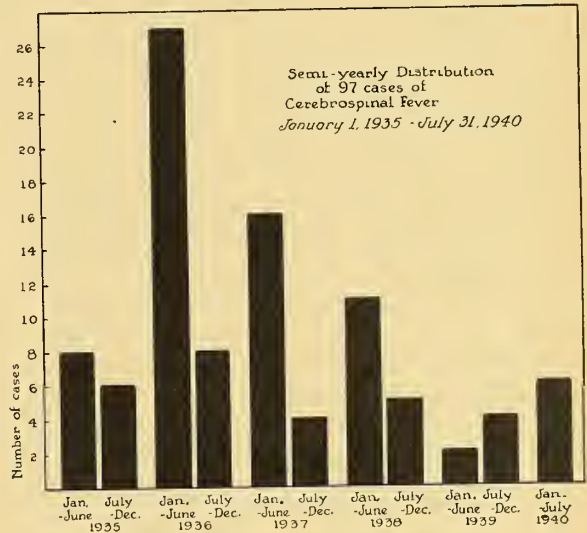
the method of treatment used, has been the source of frequent discussion. For that reason it may be of interest to analyze the results of different therapeutic regimens used in a large number of cases occurring both sporadically and in epidemics in one locality over a long period of time. Such an analysis would also seem more important in the evaluation of the efficacy of a therapeutic regimen than the study of a single epidemic in which a single type of treatment or a combination of types was used.

In 1936 one of us (Tripoli⁴) studied the results of therapy in various types of bacterial meningitis at the Charity Hospital of Louisiana in New Orleans over the previous 10 year period. A review of the records at that time showed that the mortality in 221 cases of cerebrospinal fever was 65.15 per cent. Serotherapy was used in most of the cases. Since that report was made, specific antitoxin therapy and sulfanilamide and its derivatives have also been employed in the treatment of cerebrospinal fever. The present communication concerns the results of these various types of treatment in the 97 cases which occurred in Charity Hospital of Louisiana from January 1, 1935, to July 1, 1940.

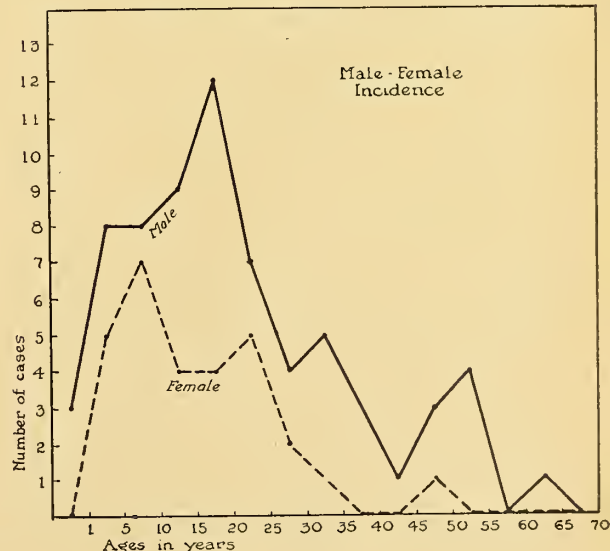
ANALYSIS OF CASES

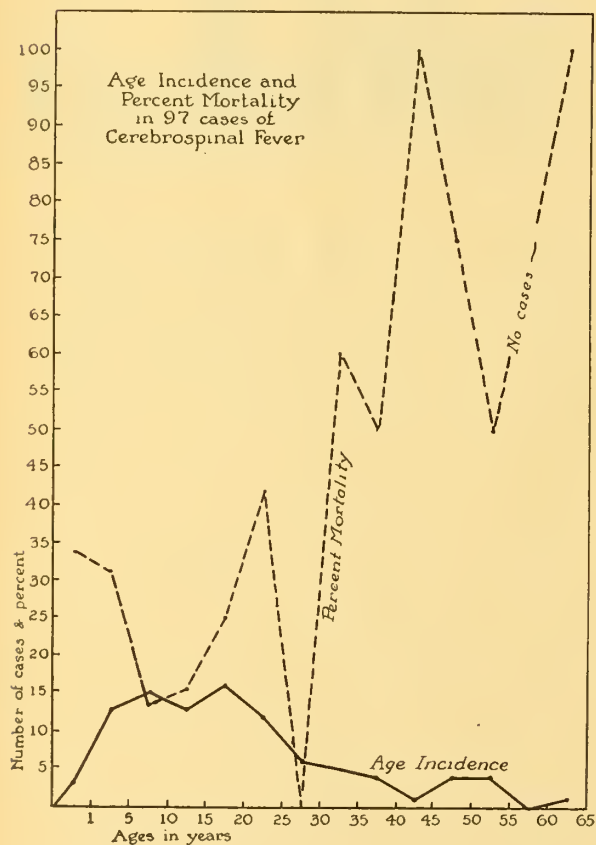
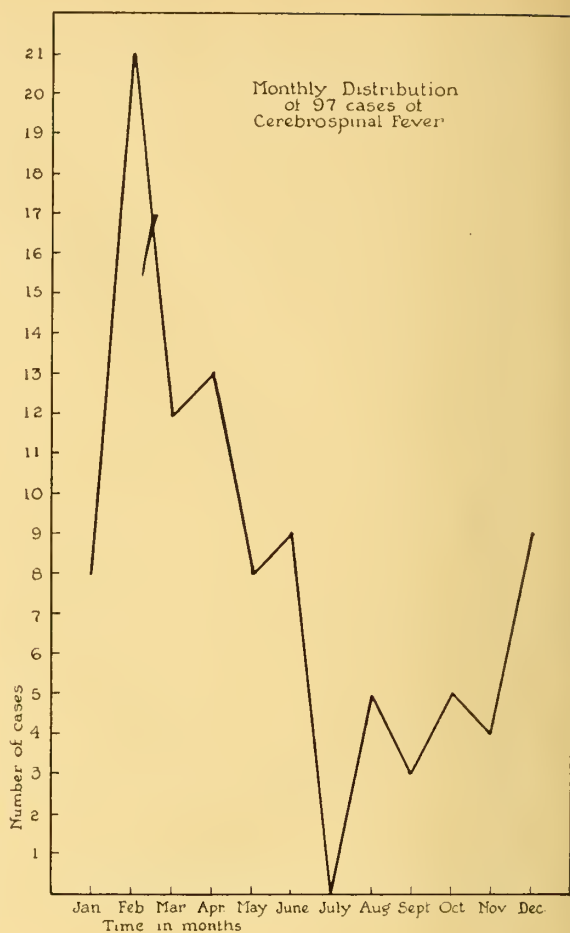
In all 97 cases included in this series the blood culture was positive or the meningococcus was demonstrated in the spinal fluid by smear or culture. During the same period many other cases were diagnosed and treated as cerebrospinal fever, but they have been excluded from this study because the organisms were not demonstrable. Had they been included, it might be added, the general mortality, as well as the mortality rates for various types of treatment would be considerably less. A few cases were also excluded from this analysis because, although the bacteriologic studies were positive, the patients were moribund on admission to the hospital and died within 12 hours, before adequate treatment could be instituted.

An analysis of these 97 cases according to date of admission shows that by far the largest number, 35, were admitted and treated during 1936. Fourteen patients were observed in 1935, 20 in 1937, 16 in 1938, and six each in 1939 and in the first six months of 1940.



Sixty-eight patients were males and 29 females, and 65 were white and 32 colored. The age range was from four months to 63 years of age. The largest number of cases (56, 57.73 per cent) occurred between the ages of five and 25 years.

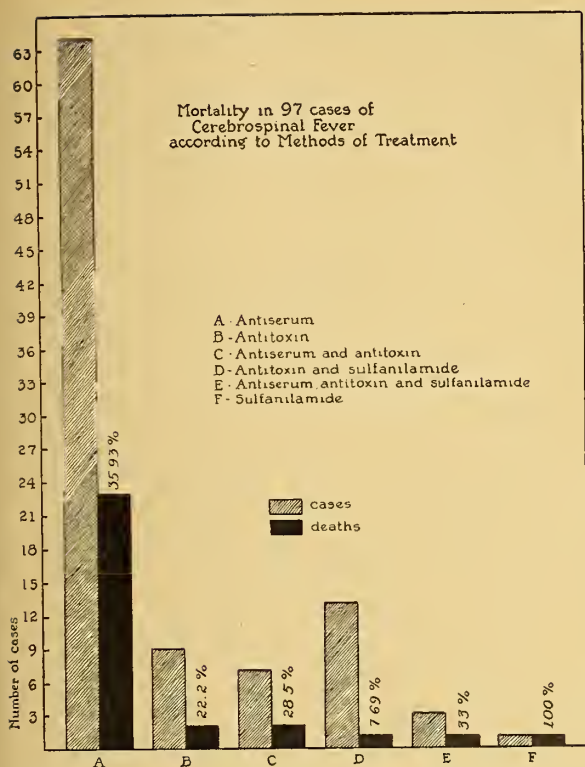




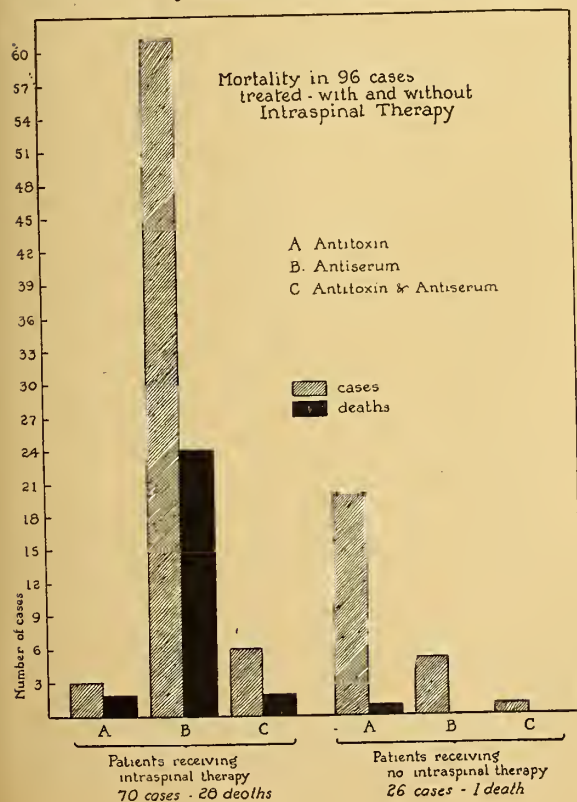
THERAPEUTIC REGIMENS

This group of patients, as has been stated, were treated with antiserum, with antitoxin, and with sulfanilamide and its derivatives with and without antiserum and antitoxin. The routes of treatment were oral, intramuscular and intravenous, with and without intraspinal injections. The distribution was as follows: Sixty-four patients were treated with antiserum alone, with a mortality of 35.93 per cent. The routes of treatment were intravenous, intramuscular and intraspinal. Seven patients were treated by antiserum (intravenously, intramuscularly and intraspinally after spinal drainage) plus antitoxin (intravenously and intraspinally) with a mortality of 28.5 per cent. Nine patients received only antitoxin (intravenously and intramuscularly) plus spinal drainage, with a mortality of 22.2 per cent. No intraspinal injections were given in this group.

A study of the seasonal variation shows that the largest number of cases (67, 69.0 per cent) occurred between November 1 and April 30, that is, during cool weather.



Thirteen patients were treated by a combination of methods: Antitoxin was given intravenously and intramuscularly and sul-



fanilamide was given orally. Spinal drainage was instituted, but no intraspinal injections were given. The mortality in this group of cases was 7.69 per cent.

Three patients were treated by: (1) Antiserum, which was given intramuscularly, intravenously and intraspinally; (2) antitoxin, which was given intravenously and intramuscularly; and (3) sulfanilamide, which was given orally and intramuscularly. There was one death (33.3 per cent). This group of cases is too small to be of statistical value, but the results are interesting, for the patients all had evidence of encephalitis and were desperately ill when they were admitted to the hospital.

The remaining patient was treated only by sulfanilamide. He did not recover, but perhaps he should not have been included in the series, for he developed cerebrospinal fever two weeks after a basal skull fracture and the severity of the contributory head injury somewhat confuses the issue.

PLANS OF TREATMENT

When antiserum was used, the general plan of treatment was to administer by vein 40 to 60 c. c. of serum diluted in 200 c. c. of saline solution, plus a similar dosage intramuscularly. When the intraspinal route was employed the serum was administered by the gravity method, after spinal drainage, in amounts of approximately 75 to 95 per cent of the volume of the spinal fluid withdrawn. The same dosage was repeated every eight to 12 hours until the spinal fluid became free from organisms and the temperature curve approached normal. In the patients in whom recovery ensued this usually occurred in from seven to 21 days.

In the early period of the study, antitoxin was administered, like antiserum, by the intravenous, the intramuscular and the intraspinal route. The intravenous and intramuscular dosage was 10,000 to 40,000 units and the intraspinal dosage 10,000 to 20,000 units. The same dosage was repeated every 12 to 24 hours until the spinal fluid became sterile and the temperature curve approached normal. In patients in whom recovery ensued this usually occurred within five to 10 days. The intraspinal route

was soon discontinued both because of the unfavorable reactions which followed it and because the patients appeared to do better when it was not used.

When sulfanilamide was used with or without antiserum or antitoxin, it was administered by both the oral and the intramuscular route. The oral dosage varied from 3 to 6 grams every four hours for the first three to five days. Then the dosage was reduced to 2 to 4 grams every 24 hours and was kept at this level until the spinal fluid became sterile and the temperature curve approached normal. The intramuscular dose, which was approximately one-fourth the oral dose, was given simultaneously with it. In patients in whom recovery ensued this usually occurred within three to eight days.

The introduction of sulfanilamide and the demonstration of its efficacy in the treatment of cerebrospinal fluid has added another important agent to our armamentarium. The number of cases in this series in which it was used is not large enough to permit sweeping conclusions, but the results are significant in themselves and become more significant when they are compared with results in other reported series.^{5, 6} The marked reduction in mortality which is apparently due to the combined use of sulfanilamide and antitoxin is more than coincidence. Furthermore, the results in the Charity Hospital series are important in view of the fact that at one time or another all methods of therapy were being used simultaneously on the same service and on different services.

When one considers the apparently equal efficacy of sulfanilamide and antitoxin, and when one bears in mind the simplicity of administration and the lower cost of sulfanilamide, it is easy to understand its constantly growing popularity. It is also easy to understand the tendency to use it alone in the treatment of cerebrospinal fever. An excellent contribution to its value is found in the report of Seid,⁷ who used it prophylactically in moderate doses in an epidemic of cerebrospinal fever and who concluded, with undue conservatism in view of his re-

sults, that it was "not valueless" as a prophylactic measure during the period of its administration. His results compare very favorably with the results of antiserum and antitoxin as prophylactic measures, and sulfanilamide has the added advantage of ease of administration.

A review of published data permits no doubt of the therapeutic superiority of antitoxin over antiserum. Since Ferry⁸ introduced antitoxin and Hoyne¹ impressively demonstrated its efficacy many published reports have confirmed their observations. Gregory and his associates,³ however, found little difference in the therapeutic efficacy of antitoxin as compared with antiserum, though they considered sulfanilamide decidedly superior to both.

There has been considerable discussion over the method of administration of antiserum and antitoxin, particularly with regard to the intraspinal route. If cerebrospinal fever be considered a local infection of the leptomeninges, surgical drainage (spinal taps) followed by local injection of the specific therapeutic agent would appear to be both logical and correct. But the disease, in all probability, is primarily a septicemia, with subsequent localization in the spinal canal, a concept which makes the surgical principles just stated appear illogical. Furthermore, they are not really applicable, for any therapeutic agent introduced into the spinal canal has little opportunity of reaching the lateral ventricles, to accomplish this purpose it must go against the circulation. On the other hand, when a therapeutic agent is given intravenously, as antitoxin, or orally, as sulfanilamide, it reaches the entire central nervous system via the blood stream.

Spinal fluid drainage by means of repeated spinal taps has been advocated because it is believed to increase the flow of spinal fluid and thus to facilitate action of the specific therapeutic agent. Even this factor, however, is apparently not of as great importance as it was formerly believed to be. Cisternal drainage in the absence of spinal block (as was observed in two cases in the Charity Hospital series) is

not superior to lumbar drainage. Furthermore, intracisternal injection of antiserum or antitoxin is potentially more dangerous than intraspinal injection, and our results lead us to doubt its efficacy at this time.

Analysis of these statistics, as a matter of fact, suggests the futility of any type of intraspinal therapy. The best results (one death in 13 cases, 7.69 per cent) were obtained by the use of antitoxin by vein and by muscle combined with sulfanilamide per os and by muscle. In the 70 patients in whom the intraspinal route was used (antiserum in 61, antitoxin in three, and antiserum and antitoxin in six) there were 28 deaths, 40 per cent, and a large number of unfavorable reactions. In the 26 patients in whom the intraspinal route was not used (antiserum in five, antitoxin in 20, and antiserum and antitoxin in one) there was only one death, 3.8 per cent.* The difference in the mortalities speaks for itself. Similar results are found in a recent report by Hoyne.⁹ He suggests that intraspinal therapy may be contraindicated in the treatment of cerebrospinal fever.

OTHER DATA

No relationship could be demonstrated between the mortality, the character of the initial spinal fluid findings, or the duration of the disease before treatment was instituted. Indeed, it was surprising to observe the number of cases in which the duration of illness varied from several days to two weeks before the patients had entered the hospital. We are, however, in accord with Musser's¹⁰ observation that the mortality, generally speaking, is higher in the patients who show well marked clinical evidences of encephalitis when they are first seen. We are also in accord with Hoyne's¹ observation that the mortality is consistently lower in patients under 15 years of age, regardless of the treatment used, than in the older age groups.

SUMMARY AND CONCLUSIONS

An analysis has been made of the methods of treatment used and the results obtained in 97 cases of cerebrospinal fever which oc-

curred during a recent five and a half year period in the Charity Hospital of Louisiana at New Orleans. Our own experiences and the experiences of others make it clear that the combined use of antitoxin and sulfanilamide gives better results than the use of either agent alone. Serotherapy, regardless of the type of serum used, does not approach the therapeutic efficacy of either antitoxin or sulfanilamide.

Other sulfonamide drugs as sulfapyridine and sulfathiazole appear to be as equally effective, therapeutically, as sulfanilamide. Especially interesting are the results following the use of sulfadiazine (2-sulfanilamidopyrimidine) described as "the pyrimidine analogue of sulfapyridine and sulfathiazole." It appears from the reports^{11, 12} that sulfadiazine is equally effective against the meningococcus and has the added advantage of being less toxic.

The value of any sort of intraspinal therapy is doubtful.

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DISCUSSION

Dr. John H. Musser (New Orleans): Dr. Tripoli has been interested in the treatment of meningitis for quite some years. I remember seven years

*The case in which only chemotherapy was used is omitted from this analysis.

ago he presented a paper at the meeting of the A. M. A. and at that time he literally tried everything under the sun in order to improve the mortality rate in the patients who had meningitis coming into the contagious disease service at Charity Hospital. You may remember, in the third or fourth slide he put on, he had innumerable ways of treating this condition, including injection of Pregl's iodine, and the results were not good. As a matter of fact at that particular meeting Dr. Josephine Neal, Associate Director, Bureau of Laboratories, New York City Department of Health, who has charge of the meningitis division thought that our figures were much higher than they should be. This was explained in part because of the fact that many of the cases of meningitis which came into the Charity Hospital were patients who came late, whereas in New York City as soon as a child evidences a meningitis, poliomyelitis or encephalitis, the City Department of Health is informed and the care of the children devolves more or less upon these experts. Certainly this particular division, I think composed of three doctors, who are called in to every case, obliged to be there as a matter of fact, might explain in part the difference in mortality rate; namely, the lateness of seeing these patients here and the fact that in New York City, where the figures are more favorable, they saw cases very promptly.

Now, with the present methods of treating meningitis, the reports from other sections of the country would indicate that the results obtained here in our hospital are comparable to the best figures published in the country. I think those results are dependent upon the fact that the sulfonamide preparations are without peer, literally, in the treatment of practically any infection and I think that the second important factor is that the use of lumbar punctures has been discontinued. The mortality rate now, with the treatment with sulfonamide preparations, antitoxin or antiserum intravenously, and absence of lumbar punctures, is really sensational and startling. The last chart which Dr. Tripoli showed was a beautiful example of that. In his mortality figures, of the pneumococcic meningitis, I think one patient recovered. We feel very badly today if a child or young adult comes into the ward and does not get well. The mortality rate of influenzal meningitis has been considered always to be one hundred per cent. I believe that there are some thirty cases reported in literature and Dr. Strange has reported an additional case of influenzal meningitis which has recovered.

I think that it is of prime importance then, to those of you who are engaged in the treatment of meningitis, to bear in mind that apparently drainage of the spinal canal is officious. It is not only not necessary but is definitely harmful. Do not repeatedly puncture the spinal canal; do it once for purposes of diagnosis and then maybe repeat once and let it go at that, and use sulfanilamide

preparations. Dr. Tripoli has analyzed the type of preparations used. My impression is that sulfathiazole is the most efficacious. The number of cases, of course, is relatively limited and we can not draw any generalization from a small number of cases. I do not believe that it is due to the fact that the meningitis organism, meningococcus, is relatively avirulent at the present time. Remember that Dr. Tripoli's figures were over a few years at least. I think his figures show very definitely that the methods employed at the present time are of very distinct advantage in the treatment of the patient who has meningococcal meningitis or may have meningitis due to other types of organisms.

Dr. Gilbert C. Anderson (New Orleans): The subject matter of this paper in regard to the details of therapy, indications and changes in management of the cases, has been so thoroughly covered by the discussion of Dr. Musser as to leave nothing for me to add. However I would like to emphasize some of the general principles laid down and particularly his last statement regarding the present trend of the management of these cases. We saw a signpost in this direction some years ago when we gradually discontinued the intrathecal treatment and now if we can also dispense with the repeated spinal fluid drainage we will have made another long step in advance. Reports such as the one Dr. Tripoli has brought to us tonight are extremely valuable as they acquaint the practitioners in general with just what is going on in the large hospitals where these cases congregate in numbers. Of course very few men in their private practice can expect to see the various types of meningitis in such numbers or to have the facilities for comparative studies. This report covers the past four years and in a previous study he reviewed the cases for the preceding ten years so we now have a comprehensive review of a fourteen year period in a large hospital where all types are received. It is from such studies as this we can reasonably draw conclusions of some value.

Dr. C. J. Tripoli (in closing): The administration of the sulfonamide drugs prophylactically, as mentioned before, to those individuals exposed to cerebrospinal fever, is worthy of further comment. In 1934 one of our medical teachers developed meningococcic septicemia from which he died 24 hours later. The students, to whom he lectured the day he became ill, desired to be protected from the disease to which they had been exposed. The question arose as to what to do for the students. We did not know what to do and after fooling around with throat cultures from the exposed students we gradually forgot it. Fortunately no further cases developed in this instance.

Certainly the advent of the sulfonamide drugs, as reported by Seid,⁷ has now added an apparently effective prophylactic agent in the management of cerebrospinal fever contacts.

ELECTRO-SHOCK THERAPY*

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NEW ORLEANS

The psychiatrist ever on the alert, seeking or investigating methods which will improve the condition of the mentally ill, is always willing intelligently and searchingly to follow the roads of true science for that purpose.

Convulsion therapy in mental and nervous disorders has made its debut into the realm of psychiatric medicine, in the form of electro-shock performed on animals by Leduc in 1900; Robinovitch of Nantes in 1911, and later by Clark and Wall.

Refreshing our memory, herein is presented a resumé dealing with steps relative to the progress in the treatment of mental disorders, which, in keeping with the topic, is most relevant.

STEPS IN THE PROGRESS IN THE TREATMENT OF MENTAL DISEASES

Antiquity		Magic, sorcery, alchemy, trephining and so forth
Pompilius	715 B. C.	Electricity
Pythagoras	580-500 B. C.	Music
Hippocrates	460 B. C.	
Plato	429 B. C.	Golden Age of Greece
Aristotle	384-322 B. C.	
Asclepiades	124 B. C.	Father of psychiatry; advised against restraint
Galen	131-201 A. D.	
Tralles	525 A. D.	Dark centuries for psychiatry
Toulum	874 A. D.	
	1410	Institution of insane asylums at Seville and at Padua
Paracelsus	1493-1541	Advised use of camphor
	1547	"Bedlam"
von Helmont	1577-1644	Plunged patients into cold water
Raleigh	1584	Discovered curare in Guiana
De Marillac	1611	
De Paul	1631	Church influence and Hospital Reform
Pinel	1792	Humane treatment of the insane
Tuke	1794	York Retreat
Esquirol	1810	Underwater and electrical treatment
Reil	1759-1813	Founder of modern psychiatry
Rush	1745-1813	Tranquillizer, gyrator
Dix	1840	Improved hospital care for the insane
Bleckwenn and others	1927	Carbon dioxide inhalations

Bleckwenn and others	1930	Narcosis
Huhnerfeld	1932	Hematoporphyrin
Bamford	1932	Pyrexia of various forms (aseptic meningitis)
Many workers	1933	Endocrine therapy
Sakel	1934	Insulin shock therapy
Meduna	1935	Metrazol shock therapy (and others)
Moniz	1936	Surgical treatment
Reiter	1937	Blood transfusion
Alexander and others	1938	Nitrogen inhalation
Cerletti and Bini	1938	Electric shock
Spies and others	1938	Vitamin therapy
Bennett	1939	Spinal anesthesia
Bennett, Cameron and others	1940	Curare
		Beta-erythroidine

This type of convulsion is induced by the electrical method as a substitution for the generally used pharmacologicals; that is, metrazol or other preparations. The present electroconvulsive therapy received its stimulus in 1938, when Cerletti and Bini, in Rome, obtained amazing results in cases of schizophrenia, producing petit and grand mal like reactions.

For our use I have found a special apparatus (Rahm), which conforms to the requirements of electrology necessary in producing the convulsive shock.

The method involves production of a convulsion by the application of a known potential difference for a known period of time between the frontotemporal regions. The apparatus comprises: (1) System of electrodes by which the current is applied to the head; and (2) the control apparatus by which the electric characteristics of the situation are controlled. Large electrodes are used, mounted by movable articulations to a bearer system of unoxidizable metal with a spring-like action permitting forcible adherence of the electrodes to the frontotemporal regions. The electrodes consist of interlacing bands of thin copper strip laced around pads of soft rubber sponge. In the electric control apparatus there is a slow trial current for preliminary measurement of the resistance of the patient's head, which permits an estimation of the proper minimal voltage necessary to produce a convulsion. In this trial circuit a potentiometer is inserted with a graduated dial for the direct reading of the resistance

*Read before the sixty-second annual meeting of the Louisiana State Medical Society, Shreveport, April 22, 1941.

in ohms when one milliampere of current passes through the patient's head. The second circuit serves to produce the shock. For this, alternating currents having a frequency of 60 cycles per second are used. The circuit of the electric control apparatus contains a volt meter for determining the voltage to be applied, a milliammeter by which the current involved in the shock can be determined, and an automatic clock interpreter which breaks the circuit at a given time. In general, we have used potential differences of 70 to 100 volts for 1/10 second. To secure optimum electrical conduction, the frontotemporal regions of the patient are covered with a thin layer of electrode jelly. The electrodes are then covered with a thin layer of electrode jelly. The electrodes are then covered with gauze and moistened thoroughly with 20 per cent saline solution. They are applied bilaterally to the frontotemporal region slightly above and anterior to the ears. Usually the resistance gauged by the trial current measures between 200 and 600 ohms. In patients with a low resistance (below 300 ohms), I usually apply a potential difference of 70 volts. For patients with higher resistance, 80 volts are used. When the current is passing, a reading is taken from the milliammeter. A record of such readings is important for use in succeeding treatments. The response of patients to this method may be generalized convulsions, or, if the stimulus is below convulsion threshold, petit mal or absence. In event of the latter, a second or even third, attempt may be made after three to five minutes to obtain a generalized convulsion. Resistance should be measured before each new attempt, since it drops after each passage of current. The convulsive threshold is however increased. The minimum amperage necessary for obtaining a seizure is usually about 375 milliamperes.

The patient is prepared for the treatments by resting the night before. The next morning, no breakfast is given, bladder and rectum emptied, when possible. All parts should be checked and given a thorough examination, electrocardiogram,

basal metabolic rate and x-ray of the spine, and the psychiatrist responsible should satisfy himself that the patient is a suitable risk.

Arriving in the treatment room, the patient is placed on a wooden table in the supine position, the inter-scapular spaces are protected. Artificial denture and metallic hair appointments are removed. The frontotemporal regions are rubbed with a jelly until a mild erythema is produced. Then follows the application of the calipers or head piece. A tampon gag is placed between the upper and lower jaws. The patient is held firm by attendants and shock is given.

The convulsion thus induced is a typical epileptic attack. Upon induction of the current, the patient loses consciousness and without an initial outcry the patient passes into a marked tonic convulsion with the trunk, legs, arms and hands in spastic semiflexion. Shortly clonic contractions follow and are of varying degree. Five minutes after the shock the patient answers, although still somewhat stuporous, and from eight to ten minutes later is restored. There remains a somnolent tendency. The advantages of this method are immediate and complete loss of consciousness, which persists for the duration of the shock. There is no excitement. The circulation is not affected except for slight acceleration of the pulse following muscular exertion in the clonic phase. The shock can be repeated a few minutes after an abortive attack. Further studies are being made to perfect technique and to provide for all possible danger sources. No deaths have occurred, nor are late ill effects noted. The clinical results are encouraging and not inferior to those obtained with cardiazol.

The marked disadvantages, that is, mental panic apprehensions and dread of the treatment, for the most part are lost in the unconsciousness, retrograde, amnesia and willingness to continue and cooperate at each visit. The patient is placed abed, following shock, and sleeping for a short period, awakes later and is then returned

to his room, or there may ensue a short period of bewilderment.

In this series of cases which began January 17, 1941 to April 15, 1941, 41 patients were treated. Ages varied from 20 to 66 years. The number of shocks given were 347; duration of illness was from two weeks to eight years.

Illnesses classed in the group were involutional melancholia, manic depressive depression, schizoid reactions, paranoid personalities, toxic, manic reaction type, and malignant dementia praecox cases.

SUMMARY AND CONCLUSION

The current use of electro-shock therapy has led to psychiatrists adding this to their mode of healing. The clinical results obtained are encouraging and are not inferior to other forms of shock therapy.

The results obtained in this series were: Recovered—males three, females 12; in remission—one female; stationary—males two, females three.

There are elements of danger, that is, fractures and dislocations, which should be explained to the agent of the patient and in all instances the necessary signed request form should be filled before any attempt at treatment is commenced. Shock therapy should be administered only in a hospital. Outpatients should likewise report there for their treatment.

The physician supervising or giving the shock should be a neuropsychiatrist, thoroughly familiar with his patient.

While a cure all is not claimed nor is the treatment considered a panacea, we are hopeful by the re-adjustments made by those of this series and one should be cautious in a forecast.

Experience is still limited. The technical problem is not as yet solved.

Perchance the electrically induced convulsions will provide the answer to convulsive disorders.

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DISCUSSION

Dr. C. S. Holbrook (New Orleans): Dr. Otis has brought to us the most recent advance that has been made in psychiatry; it is the accumulation of work of recent years, initiated by the insulin treatment and then by the metrazol treatment. This more recent treatment, the use of electro-shock to produce much the same results that metrazol did, is, I think, a definite advance. We still use insulin, and metrazol. However, I believe that electro-shock will replace metrazol. There are still definite indications for insulin. There are certain cases of mental disease that are malignant, especially schizophrenia and dementia praecox. These cases carry with them such a tremendously bad outlook, that we were all encouraged when insulin treatment and metrazol treatment were introduced, and we have with these treatments obtained better results than we could without them. Still, the outlook was not good. With electro-shock treatment, we are getting better results than we could without it.

It is not in the dementia praecox that we get best results. We still use it in dementia praecox cases and we do get good results, if we can get the cases early. The result depends inversely upon the length of time that the schizophrenic process has been going on. Those cases that have existed three, four, five years, are not promising. The cases that have existed a few months have a much better prognosis. We get the best results in the depressions, melancholia. These patients might get well in a year, eighteen months, or two years, with expectant treatment but with electric shock therapy recovery is often brought about in a few weeks.

The results are remarkable. In some of these cases of melancholia, patients are acutely unhappy, so miserable and depressed, but they are often relieved, put on the road to recovery, with four or six treatments by this method. The excitements also are benefited. The homosexual individuals, the acute panics that these people suffer from at times, are decidedly benefited, and a good deal can be done for them. Our best results are in the depressions, the next in the excitements and the early cases of dementia praecox, and the cases of homosexuality. It may be used in alcoholism; it has been tried in other conditions somewhat similar.

There is some danger, as Dr. Otis mentioned. In a compilation of 343 cases treated, the treatments amounting to 3,663, there were four fractures of the spine, and two fractures of the arm. This is rather low. These six accidents occurred in 3,600 cases. The fractures of the spine are not serious as a rule. The facets may be broken, but they are not crushing accidents as we see in automobile accidents; the cord is not involved. The worst thing is that it interferes with further

treatment. However, if the patient has had three or four electro-shock treatments, he is apt to be on the road to getting well, especially if he is suffering from a depression and the fracture does not give any trouble.

I believe electro-shock treatment has come to stay. It might give way to something else, as most everything does in medicine. Right now, it is a very valuable treatment.

Dr. Lewis A. Golden (New Orleans): Dr. Otis and Dr. Holbrook have covered adequately what we know about the subject. There is very little for me to add. I might emphasize that most of the new treatments in psychiatry are old treatments which have been rediscovered. Wagner von Juregg, who is credited with the introduction of malaria fever for paresis, was really following in the footsteps of a Russian physician who had used the treatment sixty years before. Dr. Otis referred to the use of camphor by Paracelsus who produced convulsion and cured a mental illness in the 1500's. About forty years ago electrical current was used and coma and convulsions produced but without much notice. Many of these methods strangely enough, even though successful, were soon forgotten, or else not followed up methodically.

When metrazol, which produces convulsions, came into favor, we met with a great deal of resistance on the part of the patient, because when the drug is injected, the first 30-40 seconds are accompanied by a feeling of terrific panic and horror. This was such a handicap that the patients would plead and beg not to have another treatment. So I would like to re-emphasize that with electro-shock the patient loses consciousness immediately and the convulsion ensues. The convulsion usually lasts 45 seconds, very rarely lasts longer. The patients get extremely cyanotic, as a matter of fact, they look more cyanotic than with insulin or metrazol, but they quickly recover and have no memory of the treatment.

I would like to say that it is in the depressions that we have noticed the most striking benefit; I have not as yet had a real manic excitement, though one is under treatment now. One case of early dementia praecox did not respond, while several recent ones did.

Dr. Otis and Dr. Holbrook have both emphasized that we know very little about the rationale of the treatment or why it benefits at all. We know that, quite in contrast to insulin and metrazol, no serious damage has yet been seen in the brain from electro-shock in experimental work on animals. While this may not be exactly comparable to that given in man, still no fatality has been reported in over 9,000 treatments. We hope to be in a position to give you more information a year from now.

Dr. Roy Carl Young (Covington): In regard to this treatment Dr. Otis just talked about, to me it seems to be a radical procedure, and until some

future time I think I will stick to the conservative plan of treatment in these cases.

I have had no personal experience, nor have I had any chance to observe the treatment of patients with this method. However, I have listened to the paper with an open mind and enjoyed it very much.

Dr. Walter J. Otis (In closing): I wish to thank Drs. Connely, Golden, Holbrook, Young and others for their interest and their discussion of the topic of electro-shock and their assistance in permitting me to incorporate some of their material in my paper.

At the present time, I feel we have acquired something from electrology which aids us and the individual to better levels in psychiatry.

Quite true, some have not been adjusted to normalcy, though a better re-adjustment level has been reached.

I feel, likewise, that we should continue to use insulin and metrazol for there are certain types of persons who, from the psychotherapeutic standpoint, will react more favorably than possibly with electro-shock and different personalities require this type of treatment.

PRIMARY CARCINOMA OF THE LIVER*

CASE REPORT

SAMUEL H. COLVIN, JR., M. D.
NEW ORLEANS

Primary carcinoma of the liver is quite rare. Cirrhosis of the liver may bear some relationship to carcinoma of this organ, under which circumstance the symptoms, for a time at least, are those entirely of cirrhosis. The following case report illustrates well this observation.

CASE REPORT

This patient was a white male, aged 59, who was admitted to Touro Infirmary on December 18, 1940 and died January 14, 1941. He was by occupation a sea captain, was very well developed and nourished and suffered from lower abdominal pain.

On admission the patient did not appear acutely ill. The lower abdominal pain was first noted some six or eight months previously, but had become more severe during the past month (November, 1940). There was no definite localization and the pains were referred to as "gas pains," quite severe at times. Rest, enemas, and hot water bags had given relief until lately. There was no history of jaundice, bowel dysfunction or ascites. About four months ago an unexplained fever oc-

*Read before the Orleans Parish Medical Society, February 24, 1941.

curred, accompanied by nausea and vomiting, at which time hepatomegaly was discovered by a physician. There was also dyspnea on exertion and some question of cardiac disease. Frequency and nocturia were severe and the patient was cystoscoped several times with negative results. There had been no weight loss according to the patient.

For many years this patient had been a heavy drinker and smoker, but lately had stopped smoking. The past history revealed no serious illness. One brother has diabetes and his mother died of carcinoma of the breast.

On physical examination there was no evidence of weight loss, jaundice, or ascites. The temperature, pulse, and respiration were normal. The following positive points were found: Bilateral anterior cervical adenopathy; lungs resonant except for a large area of liver dullness; breath sounds were harsh throughout. The heart was enlarged (or pushed) to left; A_2 greater than P_2 ; harsh systolic murmur, more prominent over mitral area. The abdomen was thick walled; liver palpable to pelvic brim with tender edge; peripheral arteriosclerosis.

Laboratory Data on Admission: Amylase normal. Wassermann and Kahn negative. Icterus index 6; urobilin and urobilinogen negative. Urine negative. Other routine laboratory work yielded no information. There was electrocardiographic evidence of myocardial disease. X-ray of the chest: Heart diameter was within normal limits; innumerable small and larger round shadows of soft tissue density were scattered throughout both lungs from apex to base, strongly suggestive of metastatic malignancy. Gastrointestinal studies negative.

Clinical Diagnosis: (1) Cirrhosis of liver; (2) metastatic carcinoma in liver and lungs with possible primary carcinoma of liver; (3) arteriosclerotic heart disease.

Course in Hospital: Treatment was largely symptomatic with codeine and morphine being used at times for relief of pain. Thirty minutes of diathermy per day was instituted over liver but pain grew worse. He received intermittent injections of 50 per cent glucose intravenously. Six days later it was thought that the liver could be palpated at the level of the umbilicus.

Seventeen days after admission hematuria developed, source undetermined. Abdominal pains grew steadily worse and progressive loss of weight was noted since admission.

The patient went rapidly downhill, developed pulmonary edema, started running septic temperature, became irrational, and died 26 days after admission.

SUMMARY OF AUTOPSY FINDINGS

1. Laennec cirrhosis of liver, 3425 grams.
2. Primary carcinoma of liver cells with erosion through inferior vena cava and formation of tumor thrombus.

3. Metastasis to lungs, adrenals, peri-aortic nodes, and lower pole of right kidney with erosion of calyx.

4. Chronic fibrous splenitis.

5. Ascites (3000 c.c.).

6. Arteriosclerotic heart disease (326 grams).

7. Prostatic hypertrophy.

DISCUSSION

Dr. Allan Eustis (New Orleans): I would like to say that the reason Dr. Colvin got a negative urobilinogen test was due to the fact, as shown by the micrograph, that there were sufficient normal liver cells to carry on this function. There was a large carcinoma of the liver and still there was a negative urobilinogen test.

THE DIAGNOSIS AND TREATMENT OF DISORDERS OF THE SEBACEOUS GLANDS (SEBORRHEIC DERMATITIS AND ACNE VULGARIS)

BARRETT KENNEDY, M. D.†
NEW ORLEANS

We are concerned here primarily with seborrhea and acne vulgaris and their complications.

SEBORRHEA

Seborrhea itself is a functional disorder of the sebaceous glands consisting of an increased amount of sebaceous secretion.

There are two general types of this disorder:

I. Seborrhea sicca: (a) Scaling form characterized by the formation on the scalp of fine, slightly greasy, greyish-white scales which may be so abundantly shed as to fall and cover the shoulder of the patient; (b) crusting form in which the scabs are pierced by the hair or matted together by the hair and all adherent to the scalp.

II. Seborrhea oleosa, characterized by the excessive amount of oil present in the secretion, especially on the scalp, forehead, nose and cheeks. The type often found in negroes and adolescents, and accompanying acne vulgaris. This is the type which frequently leads to baldness.

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All types of seborrhea presenting inflammatory manifestations other than congestion are classified as seborrheic dermatitis. This is an acute or subacute inflammatory dermatitis which usually begins in the scalp and spreads to involve the seborrheic areas, so-called because of the large number of sebaceous glands in these areas. They are behind the ears, the external auditory canal, the sides of the nose, and adjacent cheeks, the eyebrows and upper eyelids, the sternal areas of the chest, the shoulders and back, the umbilicus, the axillae and groin.

Age: No age exempt.

Causative Organism: *Pityrosporum ovale* is usually given credit as the cause.

Complications: External otitis, infectious eczematoid dermatitis, conjunctivitis.

Sequelae: Neurodermite (*Lichen chronicus simplex*); exfoliative dermatitis.

DIFFERENTIAL DIAGNOSIS

Infants: Infantile eczema (atopic dermatitis); contact dermatitis (chemical or plant); intertrigo; diaper rash; fungus infection.

Adults: Psoriasis; allergic dermatitis; contact dermatitis (chemical or plant); infectious eczematoid dermatitis; intertrigo; coccigenic dermatitis; pityriasis rosea; fungus infections. In generalized cases, leukemia cutis and mycosis fungoides.

TREATMENT

General: A thorough investigation into the general health should be made, paying particular attention to anemias, dysfunction of the glands of internal secretion, foci of infection, gastrointestinal disorders and malnutrition.

In cases with severe inflammatory changes, warm boric acid or 1-5000 potassium permanganate packs several times a day are most useful, followed at night by the application of a 3-5 per cent ammoniated mercury in 5 per cent ichthyol ointment and a 2 per cent aqueous solution of gentian violet in the daytime. In cases where there is a marked evidence of secondary infection, the sulfanilamide com-

pounds are used. The scalp hair should be cut short, and if the scalp is severely involved the same routine as given above may be used.

In cases of milder character the scalp is treated with: (1) *Liquor carbonis detergens*—apply to scalp once or twice a week with a toothbrush or eyedropper and wash out the next day with plain soap, Packer's or Grandad's tar soap, a commercial shampoo or a special shampoo, as:

Resorcin—4 drams

Tincture of green soap—q.s. 8 ounces

For patients with thick, scaly lesions a salve is prepared, as:

Salicylic acid—gr. 15

Ammoniated mercury or sulphur (ppt.)—gr. 30

Ung. aquae rosae—enough to make 1 ounce

M. et sig.: apply to scalp the night before washing with soap.

If a tonic is desired:

Bay rum—3 minims

Hydra. chlor. corrosivum—2 gr.

Ammonium chloride—20 gr.

Salicylic acid—1 dram

Resorcin—1 dram

Castor oil (with dry scalps)—4 minims

Alcohol (70%)—enough to make 6 ounces

M. et sig.: apply to scalp as directed several times a week.

Patients should not expose their scalps to sunlight before they remove the liquor carbonis detergens. Blonds should not use resorcin. Patients should be warned not to get permanent waves before they have thoroughly removed the sulphur, as discoloration will result. Recently Paul Gross, studying the effects of vitamin B and liver in various "non-pellagrous" eruptions, reported that the so-called localized seborrheic eczemas responded promptly and favorably to injections of liver. I have used it only recently and in a limited number of cases with marked success. It is administered at the rate of 5 to 10 units of the unconcentrated liver extract every five to

seven days. B complex capsules and dilute or concentrated hydrochloric acid are given additionally.

ACNE VULGARIS

Acne vulgaris is a chronic inflammatory disorder of the sebaceous glands characterized by the development of shallow or deep pustules associated with comedones and seborrhea of the scalp. It is limited to the areas where the sebaceous glands are well developed. It may be accompanied by hirsutism, especially in brunette types.

ADDITIONAL TYPES

(a) Acne cacheticorum or scrofulosorum—in those suffering from anemia, tuberculosis, or other severe constitutional disorders. Large, dusky red, inflammatory plaques, abscesses and oil cysts, double comedones, discharging sinuses. The face, chest, lower back and buttocks, and extremities are all involved.

(b) Keloid acne—where the tendency to keloid formation is marked.

(c) Acneform eruptions—lesions occurring in areas selected by acne vulgaris.

1. Chemicals—halogen group (iodides, bromides, chlorine, fluorides).

2. Neurotic excoriations.

(d) Acne rosaceo.

ETIOLOGY

John S. Stokes in a factor analysis of the acne complex, gives the following list of causes:

(1) Hereditary factor — probability twenty-six times greater if there have been previous cases in the family.

(2) Age endocrine factor—including menstrotoxic elements.

(a) Black found acne in 59.6 per cent of the girls between ages of six and 18 years; 68.5 per cent in boys six to 19 years.

(b) Women outnumbered men three to one, possibly a reflection of the greater concern apt to be manifested for the feminine complexion.

(c) The cyclic hydration of tissues just preceding menstruation.

(d) Hypothyroidism.

(e) Sexual emotion and tension an ef-

fect through the endocrine mechanism on acne.

(3) Scalp tie-up—genesis of lesions above hair line, contact and distribution of the seborrheic scale.

(4) Hypothesis of double infection—streptococcus, staphylococcus, *Corynebacterium*, *Staph. aureus*, pityrosporum, *dermodex follicularis*.

(5) Allergic element—33 per cent of 175 cases. Chocolate and yeast aggravate or produce the lesions.

(6) Contact inoculation factor—auto-inoculation due to picking.

(7) Rosacea background—sensitivity of flush areas (easily embarrassed).

(8) Fatigue and exhaustion—tension of work, dates, examinations.

(9) Vitamin factor—Vitamin B₁ beneficial effect on the mobility of the gastrointestinal tract. Vitamin C no effect. Vitamin D 100,000 units daily gave improvement in 25 per cent of cases. Chlorotic girls—vitamin B and iron.

10) Psychoneurogenous component—

(a) Emotional effects on thalamic control of sebaceous secretion.

(b) Vasomotor effects—vagotonic flushing.

(c) Depressive effects of emotion on secretion of hydrochloric acid and through consequent rise in pH on the absorption capacity of the gastrointestinal tract with the induction of the background for rosacea.

TREATMENT

The treatment of acne vulgaris, as in seborrheic conditions, must begin with a general check-up.

(1) *Diet*: High protein, low fat, low carbohydrate diet. Bland with the avoidance of: Chocolate and cocoa; highly seasoned foods; greasy or fried foods, fat meats (pork, ham); starchy foods, cakes, pastries; milk, cream, butter, butter substitutes, cheese; iodized salt.

(2) *Vitamins*: B complex in appropriate cases. Vitamin D high doses (50,000 to 100,000 units per day).

(3) *Glandular therapy*: Thyroid in hypothyroidism, estrogenic substances, according to the case.

(4) *Mechanical*: Expressing comedones in the office. Injecting 10 per cent phenol into deep cysts.

(5) *Physiotherapy*: Ultraviolet light to scalp and face in sub-erythema or erythema doses at weekly intervals.

(6) *X-rays*: 75 to 100 roentgens ($\frac{1}{4}$ erythema doses) to involved area once a week for six to 12 weeks. Other methods should be tried first. Twelve such doses is upper limit of skin tolerance. Record x-ray dosage. Know the amount of x-ray patient has received previously.

(7) *Vaccine*: Mixed influenza, staphylococcus, streptococcus, (commercial) $\frac{1}{2}$ to 1 c. c. once a week hypodermically.

(8) *Local treatment*:

(a) Scalp—see under seborrheic dermatitis.

(b) To involved areas at night: hot compresses of salt or boric acid solution in pustular cases for 15 minutes. Others, wash with hot water and soap and rinse with hot water and apply salve.

Salicylic acid—gr. 15.

Sulphur (ppt.)—gr. 40.

Ung. aquae rosae enough to make 1 ounce

M. et sig.: to involved areas nightly.

Morning, wash thoroughly with hot water and soap, rinse with cold water and apply lotio alba.

Zinc sulphate— $\frac{1}{2}$ ounce.

Potassium sulphurette— $\frac{1}{2}$ ounce.

Aquae rosae—enough to make 6 ounces.

M. et sig.: apply each day.

(9) *For scarring*: Plastic surgeons should be consulted in severe cases. Individual scars may be removed, relaxed skin tightened by them.

(10) *For acne conglobata*: Tuberculin (bovine or O. T.) injection as brought out by Van Studdiford has been valuable.

(11) *In neurotic excoriation cases*: A psychiatrist should be consulted.

(12) *In bromide or iodide acne*: Increase the sodium chloride intake.

(13) *In keloid acne*: Saturated solution potassium iodide by mouth x to xx drops t.i.d.

PROGNOSIS

Relapses are frequent, and, if they occur, the history of the conduct and the general health of the patient should be thoroughly gone into, especially in regard to cooperation of the patient, diet, intercurrent infections, overwork, worry, alcoholic excesses, constipation, and menstrual flares.

ACNE ROSACEA

Acne rosacea is included in this paper because of its close relationship to acne in general. It is a chronic disorder of the skin occurring on the flush areas of the face. It is characterized by a purplish congestion of these areas with small individual papules surrounded by telangiectasis and surmounted by small pustules. The sequela may be rhinophyma.

(a) Age: After 30. Frequently at or after the menopause.

(b) Hereditary factor is of importance.

(c) Type: (1) Gastrointestinal (low gastric acidity, constipation, "gas on stomach", vague GI complaints); (2) vasomotor instability, low blood pressure (flushing of face in response to extremes in temperature and after ingestion of stimulating foods as alcohol, coffee, tea, hot soups, highly seasoned foods).

(d) Treatment: (1) In general as with acne vulgaris; (2) avoid exposure to extremes in temperature, high winds; (3) diet: (a) same as acne vulgaris with stress on blandness of diet. Avoidance of alcohol, coffee, tea, hot liquids, highly seasoned foods, pastries; (b) dilute hydrochloric acid, 20 minims with meals; (c) electro-desiccation of telangectatic area; (d) local treatment: mild ammoniated mercury or sulphur salve, soothing and protective lotions, scalp treatment as in seborrhea.

SUMMARY

In treating acne and seborrhea, I have tried to give emphasis to the importance of being thorough in the study of the patient as a whole. Acne is by no means easily conquered and its treatment requires persistency and good cooperation between doctor and patient.

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MEDICO-MARTIAL NOTES

The situation in Europe at the time of writing this seems to be most depressing. One of the nations which the United States is tacitly backing is retreating with a rapidity which is most disheartening. In this country the flow of matériel from factories seems to be held up here, there and everywhere by repeated strikes. The cost of living is going up by leaps and bounds and inflation seems to be almost around the corner. Altogether the picture has a de-

cidedly bluish tint for those who believe that totalitarianism is a pernicious and contemptible form of government.

In the State of Louisiana war activity has been most embracing, not only are there shipyards, shell filling plants, cantonments, but also other forms of military energy are engaging the time and effort of innumerable soldiers and citizens.

The people of Louisiana have had the opportunity of seeing many of the hundreds of thousands of troops that came into their territory and those who live in the western part of the state have had a vast multitude of soldiers descend upon them during the course of maneuvers which terminated the first of October. These were the largest maneuvers ever held in this country and the largest that will take place this year. The soldiers had the misfortune of meeting bad weather the greater part of the time but in spite of this their health record was excellent. Only one-third of the expected and anticipated sickness developed in the half million troops in the State of Louisiana. The death rate from accidents was small, the morbidity rate was markedly reduced and were it not for the increasing incidence of venereal diseases, the health situation was and is extremely satisfactory. It must be said with approbation that the Army Medical Corps and the Public Health Services of the local, state and Federal Government did a splendid job in western Louisiana during the summer months when so many troops were quartered in that area.

The problem of what to do with the young men who are rejected by the examining physicians of the draft board because of some physical or mental disability, is agitating thinkers throughout the country. The President has proposed a plan to rehabilitate these young men, almost a million in number, who failed to pass the draft examination. Of this group approximately 200,000 have remedial defects, for the most part oral or ocular. Most of the remainder do not have physical faults which can be immediately remedied.

The result of these examinations indicates a most deplorable state of affairs in

this country. It is true that many of the conditions are of minor importance but sufficient to disqualify a man for Army service. On the other hand, there are enough rejectees to show that there is something wrong with the care of the young adult and the prevention of serious physical disability. A child gets a physical examination in school but often the examination is woefully inadequate and incomplete. As a matter of fact in a large number of schools the examining physician is not permitted to examine the bare chest. After school, further examinations are not made. It has been suggested that there should be compulsory physical examinations for all young people. This is a suggestion which has been advocated for years by members of the medical profession, a routine yearly physical examination of the whole body and a thorough physical check-up. Whether or not such examinations would detect most of the disabilities in their incipency is a question. Certainly a very large number of young men who are now found physically inadequate could have had remedial measures applied which would have prevented the disability, or, if it had already developed, rectified it.

The correction of the physical defects and the rehabilitation of those who have such faults presents a tremendous problem and it is a problem which is very much more economic and educational than it is a health measure. There are sufficient doctors, hospitals and institutions to take care of these men and to restore them to full physical well-being but they have to be taught to go to the doctor and arrangements have to be made to take care of the expenses that necessarily will arise in the innumerable and varied problems presented by illness.

VASCULAR SURGERY

Under the above caption there appeared on page 93 of the *British Medical Journal* for July 19, 1941, an editorial which paid honor to our great New Orleans surgeon, Dr. Rudolph Matas. The *British Medical Journal* is not prodigal in its praise. The *Journal* is reprinting this editorial below in

its entirety, not only because it indicates the world-wide appreciation of Dr. Matas, but also because the contributions referred to in the editorial are part of the surgical history of Louisiana and of the institutions from which the work emanated. The medical profession of Louisiana has a vicarious pride in the work of Dr. Matas. We here feel that praise of him reflects glory upon us as well. The editorial reads as follows:

"The name of Dr. Rudolph Matas is an honoured one in the field of international surgery and of outstanding importance in the sphere of vascular surgery. It is all the more honoured since he started his internship at the Charity Hospital, New Orleans, in the year 1877, at the dawn of the Listerian era, and he is still contributing to the subject he has made so much his own. The unsettled conditions which prevailed in the State of Louisiana during the early part of last century provided surgeons with opportunities for treating many wounds of the peripheral blood vessels and their sequelae. Thus the surgeon's traditional interest in this field was maintained and continued at a time when abdominal and other branches of surgery were claiming more and more adherents. It is worth remembering that in the past the surgeons who achieved the greatest international fame were those who had won their reputations largely through their own work in the surgery of the blood vessels. Matas's early training and experience were thus in a school where the surgery of vascular lesions was a day-to-day problem. In 1888 he carried out the first endo-aneurysmorrhaphy for the treatment of aneurysm and reported the case in the same year. The *Annals of Surgery* for November, 1940, which is a symposium on aneurysms and vascular surgery, contains a review by Matas of a personal series of 620 operations performed upon the blood vessels for all causes between the years 1888 and 1940, a further article from him on aneurysm of the abdominal aorta at its bifurcation into the common iliac arteries, and contributions from other workers on various aspects of vascular surgery and the treatment of

aneurysms. Of Matas's total of 620 operations, 147 were on the common carotid or its branches and 203 at other sites, while 260 were for aneurysm and 360 for other conditions. The different anatomical sites and the operative and technical details are analyzed and classified. Suture methods were employed in 101 cases, and ligation, including aluminium bands, in 519. There were only thirty deaths in the series, or a mortality of 4.83 per cent. This detailed record, which concludes with a list of 108 contributions by Matas to the literature of vascular surgery, is a monument to his wide clinical interests, technical skill, and critical and scientific outlook. His work has served and should still serve as an inspiration and encouragement to younger men the world over."

THE SURGICAL TREATMENT OF VARICOSE VEINS

One of the commonest minor disabling disorders which the female notably, and the male to a somewhat lesser extent, is prone to develop, is varicose veins of the legs. It is said that three per cent of all patients admitted to hospitals have varicosities of the extremities. These varicosities decrease the efficiency of the individual who is engaged in active work. They often produce discomfort and pain which is sufficiently aggravating to make the patient become a neurotic, and sometimes they prepare the field for chronic leg ulcers which are unsightly and annoying in many ways.

Greenwood and Strange* discuss briefly the active treatment of varicose veins of the lower extremity. They point out that there are certain indications and contraindications to active treatment and they review briefly the operative procedures that were popular recently and those which are popular at the present time. The vein-stripping operation of Mayo has ceased to be one of the methods that are employed, although at one time very popular, because of the high

mortality that resulted from emboli. The injection of sclerosing agents into the veins has proved disappointing. Reports from various clinics show recurrence in 60 to 100 per cent in one to two years, due to recolonization of the vein, so that the method is of value for temporary relief only. At the present time these authors are employing a combination of high saphenous ligation plus retrograde injection with occasional supplementary segmental injection. This method of treatment is the one now suggested and used by surgeons who are interested in vascular surgery.

The details of the technic of operation are not germane. Suffice it to say that after the isolation of the long saphenous veins all the branches are ligated and then the sclerosing solution of 3.5 per cent sodium ricinoleate is injected. In about two weeks the patient who has not been completely bedridden is encouraged to walk if there is complete thrombosis of the veins. Recurrence after this active form of treatment is reduced as much as 80 per cent, according to the reports from various clinics.

There are certain contraindications to this active form of treatment. They include such factors as advanced age or senility, pregnancy, closure of deep veins by previous thrombosis, presence of certain severe diseases such as diabetes, heart disease, pulmonary disease, metastatic carcinoma; severe peripheral arterial vascular disease, in which the arterial side of the circulatory mechanism is severely involved by arteriosclerosis; the presence of an active phlebitis, although this contraindication is questionable, and lastly tumors of the pelvis or mechanical obstruction of the ileum. In addition to these complications it is advisable always to carry out certain tests in order to determine if the operative procedure is indicated and to determine the severity of the varicose condition of the veins.

In the preoperative examination of the patient, the patency of the deep veins is determined by relatively simple procedures, consisting of elevating the leg, bandaging with elastic bandage from the toes to the

*Greenwood, E. N., and Strange, V. M.: Practical application of recent concepts in active treatment of varicose veins of lower extremities, *Pacific Coast Medicine*, 9:12, 1941.

groin, and allowing the patient to walk. If the deep veins are obstructed there will be severe pain in the extremity. He is therefore not a subject for ligation of the saphenous vein and retrograde injection. The competency of the saphenous-femoral valve is then noted. Pressure is made over the fossa ovalis with the fingers, the leg is elevated when the patient is on his back and effort is made to milk the extremity of

stagnant blood. Pressure is then made over the sapheno-femoral opening with the finger when the patient stands up. The pressure is then released from the fossa ovalis and if there is rapid filling from above down the sapheno-femoral valve is incompetent. With these two simple tests it is possible to determine advisability of operation and how extensive the operation should be.

HOSPITAL STAFF TRANSACTIONS AND CLINICAL MEETINGS

MERCY HOSPITAL New Orleans

The regular monthly staff meeting of Mercy Hospital was held October 1, 1941, with Dr. T. F. Kirn presiding.

Dr. Hanckes presented a very interesting case of atresia of the esophagus with an opening into the tracheal tree, occurring in a female child who at birth weighed 5 lbs. 6½ oz. The delivery was normal. Immediately after delivery the child was cyanotic, presenting mucus at the mouth. This mucus was aspirated with little success. On feeding next day formula was regurgitated through the mouth and nose; cyanosis and dilatation of stomach occurred. An intranasal catheter which was introduced, went down only for about 10 cm., meeting resistance there. Barium introduced into the esophagus showed a dilated pouch about this area. Lipiodol introduced under bronchoscopic visualization showed lipiodol in right lung. Three hours later an x-ray film showed lipiodol in stomach.

Under local the stomach was explored; gastrotomy was done and a 14F catheter was introduced into the stomach and duodenum. The child died three hours later. Autopsy proved the preoperative diagnosis.

About 300 such cases have been described, the first being described by McKenzie in 1870. The etiology is an error in embryologic development. The diagnosis is established on: (1) vomiting fluid by nose and mouth; (2) steady flow of saliva and frothy mucus; (3) cyanosis and suffocation; (4) nasal catheter meets an obstruction; (5) distention of stomach with air; (6) dehydration, inanition, fever.

The operative procedure should attempt to prevent aspiration of food into bronchial tree and to feed patient. The specimen, which was very interesting was displayed by Dr. Hauser. The case was discussed principally by Drs. J. J. Irwin, Hauser, and DeBailey. Dr. Hanckes closed the discussion.

The deaths were then discussed, followed by mortality investigation. Dr. Treadway brought out in synopsis form two interesting cases: one patient

with peptic ulcer of 13 hours' duration who died of peritonitis; another patient with partial obstruction which went into complete obstruction, was operated on and died four days later, the tube becoming obstructed with feces.

Meeting adjourned at 9:35 p. m.; members of staff were served refreshments in the cafeteria.

N. J. Tessitore, M. D., Sec.

TULANE MEDICAL SCHOOL MEDICAL STAFF New Orleans

The first fall meeting of the Medical Staff of the School of Medicine was held in the Auditorium of the Hutchinson Memorial on Wednesday, October 8. After a business meeting two scientific presentations were made. The first paper was "Recent Studies on the Toxicology of Paraldehyde" by Mr. P. W. Hitchcock of the Department of Pharmacology. The second paper, "Weil's Disease," was presented by Dr. F. E. Bruno of the Department of Medicine. Some ten or twelve members of the staff discussed this subject. It was pointed out, amongst other things, that in some respects Weil's disease resembles closely yellow fever. As a matter of fact in 1907 there was a death in the city of a man with extreme jaundice who probably died as result of Weil's disease. At the time it was an open question whether or not he had yellow fever.

TOURO INFIRMARY New Orleans

The regular monthly meeting of the Medical Staff of Touro was held Wednesday, October 8 at 8 p. m.

The first feature of the program was the usual clinico-pathologic conference conducted by Dr. S. Harvey Colvin. Following this demonstration, Drs. Maud Loeber and Edgar Burns read a paper on "Multiple Neoplasia of Separate Form and Etiology in the Infant Kidney." This was succeeded by a beautiful demonstration of clinical koda-chromes presented by Dr. Waldemar R. Metz. The

meeting closed with a moving picture made by the Winthrop Chemical Company entitled "Regional Anesthesia."

SOUTHERN BAPTIST HOSPITAL

New Orleans

The regular monthly meeting of the Clinical

Staff was held October 28 in the Staff Room of the Hospital. The following scientific program was presented: "Case of Essential Hypertension" by Dr. George Mayer; "Case of Fungus Infection of the Lung" by Drs. S. J. Rosenthal and L. C. Chamberlain.

TRANSACTIONS OF ORLEANS PARISH MEDICAL SOCIETY

CALENDAR

- November 3. Board of Directors, Orleans Parish Medical Society, 8 p. m.
- November 4. Eye, Ear, Nose and Throat Staff, 8 p. m.
- November 5. Clinico-pathologic Conference, Charity Hospital Morgue Amphitheater, 1:30 p. m.
Hutchinson Memorial Clinic Staff, 8 p. m.
Mercy Hospital Staff, 8 p. m.
- November 6. Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.
- November 10. Orleans Parish Medical Society, Scientific Meeting, 8 p. m.
- November 11. Eye, Ear, Nose and Throat Society, 8 p. m.
- November 12. Clinico-pathologic Conference, Charity Hospital Morgue Amphitheater, 1:30 p. m.
Touro Infirmary Staff, 8 p. m.
Woman's Auxiliary, Orleans Parish Medical Society, Orleans Club, 3 p. m.
- November 17. Hotel Dieu Staff, 8 p. m.
Clinico-pathologic Conference, Baptist Hospital, 8 p. m.
- November 18. Charity Hospital Medical Staff, 8 p. m.
- November 19. Clinico-pathologic Conference, Charity Hospital Morgue Amphitheater, 1:30 p. m.
Charity Hospital Surgical Staff, 8 p. m.
Clinico-pathologic Conference, Hotel Dieu, 8:15 p. m.
The New Orleans Tuberculosis Hospital Staff, 8 p. m.
- November 20. Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.
- November 21. I. C. R. R. Hospital Staff, 12 noon.
New Orleans Dispensary for Women and Children Staff, 8 p. m.
- November 22. Special Meeting, Orleans Parish Medical Society—The Salmon Committee on Psychiatry and Mental

- Hygiene, McAllister Auditorium, 8 p. m.
- November 25. Baptist Hospital Staff, 8 p. m.
- November 26. Clinico-pathologic Conference, Charity Hospital Morgue Amphitheater, 1:30 p. m.
French Hospital Staff, 8 p. m.
- November 27. Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.
- November 28. L. S. U. Faculty Club, 8 p. m.

During the month of October the Society held one regular scientific meeting. The program was as follows:

1. Behind the Scenes with the Community Chest—Motion Picture.
2. Sympathetic Nerve Block in Rehabilitation of the Injured Extremity, Report of Case—by Dr. Howard Mahorner.
3. Peritoneoscopy—by Drs. D. N. Silverman and Robert Katz.
4. A Report on Recently Observed Cases of Weil's Disease—by Drs. Carl J. Wilen, R. B. Snively, and F. E. Bruno.

NEWS ITEMS

Dr. Elizabeth Bass, founder of the local branch of the American Medical Women's Association, was recently honored by this group with a banquet. Dr. Bass was presented with a hand printed book containing the history of the local branch of this organization.

Dr. Frederick F. Boyce presented a paper on the "Hepatic (Hepatorenal) Factor in Burns" at the annual assembly of the Piedmont Postgraduate Clinical Society, Anderson, S. C., September 9-11.

Dr. Val Fuchs was recently appointed Director of the Emergency Medical Service of Civilian Defense in New Orleans.

Dr. Walter Otis was recently elected chairman of the staff of the DePaul Sanitarium; Dr. Edmund Connely was elected vice-chairman, and Dr. Louis J. Dubos, secretary-treasurer.

Drs. John F. Oakley and E. Garland Walls read papers at the first fall meeting of the Baptist

Hospital Clinical Staff, September 23. Dr. Oakley presented a case report on "Osteoma of Pelvis Complicating Pregnancy," and Dr. Wells spoke on "Adenocarcinoma of the Mouth at the Base of the Tongue."

Dr. Edwin L. Zander was elected chairman of the Surgical Staff of Charity Hospital at a meeting of the staff on September 17. Dr. Henry G. Butker was elected vice-chairman and Dr. Eugene H. Countiss, secretary.

Dr. H. R. Unsworth recently attended the meeting of the Southern Psychiatric Society at Nash-

ville, and the International Medical Assembly in Minneapolis.

TREASURER'S REPORT

Bank Balance, August 31, 1941.....\$5,721.02
September Credits 500.84

Total Credits\$6,221.86
September Expenditures 655.46

Actual Book Balance, September 30,
1941\$5,566.40

Edwin L. Zander, Secretary

LOUISIANA STATE MEDICAL SOCIETY NEWS

C A L E N D A R

PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
East Baton Rouge	Second Wednesday of every month	Baton Rouge
Morehouse	Second Tuesday of every month	Bastrop
Orleans	Second Monday of every month	New Orleans
Sabine	First Wednesday of every month	
Second District	Third Thursday of every month	

MATAS RECEIVES TIMES PICAYUNE CUP

On Saturday, October 25, the Times-Picayune Cup for 1941 was presented by Mr. Nicholson to the country's most distinguished surgeon and New Orleans' best known citizen, Dr. Rudolph Matas. The presentation of the Cup for distinguished service to the community was held in the auditorium of the Hutchinson Memorial before a large gathering. In his speech of acceptance, Dr. Matas spoke with his usual felicity and charm.

TANGIPAHOA PARISH MEDICAL SOCIETY

The regular monthly meeting of the Tangipahoa Parish Medical Society was held at the Casa de Fresca Hotel in Hammond on October 9.

The following papers were presented: "The Treatment of Burns" by Dr. O'Neal, of New Orleans, and "Head Injuries" by Dr. C. B. Odom, also of New Orleans. Mr. Stewart, head of the Farm Security Administration of Tangipahoa Parish, was present to give the doctors information about this group.

S. J. Cali, M. D., Sec.

SOUTHERN MEDICAL ASSOCIATION

The annual meeting, as previously announced, will be held this year in St. Louis, November 10-13. The many Southern physicians who look forward yearly to this convocation of science and pleasure will have spread before them as usual an excellent formal program, as well as many social events.

There will be a large scientific exhibit and what ought to be very interesting, a hobby exhibit. Many motion pictures also will be shown.

The professional program includes papers not only by Southern physicians but also by invited guests, probably the most notable of whom is Dr. Frank H. Lahey, President of the American Medical Association. Following the general clinical sessions on Monday and Tuesday, will come the section meetings. In these section meetings, the physicians of Louisiana are well represented. Appearing on the program reading papers will be Drs. Chester A. Stewart, Charles Barrett Kennedy, with James K. Howles and Medd Hennington, Vincent J. Derbes, Frederick F. Boyce, Guy Caldwell and Frank J. Cox, Peter Graffagnino and Richard T. Stephenson, and Joseph W. Reddoch.

Organizations meeting simultaneously with the Southern Medical include the American Public Health Association, the Southern Branch under the presidency of Dr. Felix Underwood, the National Malaria Committee of which Dr. J. N. Baker is chairman, and the American Society of Tropical Medicine, whose president is Thomas J. Mackie of New York. Meeting conjointly with the American Society of Tropical Medicine will be the American Academy of Tropical Medicine.

In addition to Dr. Lahey, Dr. James S. McLester will speak on "Nutrition in War Time" and Mr. Edward A. Tamm, of the Federal Bureau of Investigation, will speak on "Espionage in the United States." Dr. Paul H. Ringer will deliver the President's Address at the general session meet-

ing on Tuesday, November 11. What Dr. Ringer has to say is always worth hearing.

For the ladies a tremendously interesting and long program has been provided. They will be entertained from 10 in the morning until 10 at night with all kinds and variety of interesting entertainment.

COMMUNITY CHEST—LYONS HEADS PHYSICIANS

Dr. Shirley C. Lyons, Vice-president of the Orleans Parish Medical Society, is chairman this year of the Physicians and Surgeons Branch of the Doctors' Division of the Community Chest. He succeeds Dr. Warren Rosen who was last year's Chairman. The captains of the Doctors' Division are the following well known New Orleans physicians: Drs. Harold A. Bloom, C. L. Brown, O. P. Daly, J. C. Dubret, Homer Dupuy, E. A. Fatter, J. B. Gray, R. P. Hays, J. K. Howles, M. Lescale, J. M. Lyons, Mercer Lynch, J. G. Menville, D. J. Murphy, Neal Owens, J. R. Schenken and C. S. Wood.

POSTGRADUATE COURSES

An intensive course in ophthalmology will be held at George Washington University School of Medicine, Washington, D. C., February 2-4, 1942. Succeeding this will be a course in aviation ophthalmology and aviation medicine on February 5-7.

A course limited to thirty physicians will be given in ocular surgery, pathology, and orthoptics, January 26-31. Distinguished guest lecturers from Boston, Rochester, Chicago, Philadelphia, New York, St. Louis and other cities have been selected to take part in the course.

AMERICAN COLLEGE OF SURGEONS

The annual meeting of the Fellows of the American College of Surgeons will be called to order on Thursday afternoon, November 6, in the Ballroom of the Copley Plaza Hotel, Boston, according to the notice sent out by Dr. Irvin Abell, Chairman of the Board of Regents.

THE SALMON LECTURES

The Salmon Memorial Lectures will be delivered throughout the country by Dr. Robert D. Gillespie, psychiatric specialist of the British Royal Air Force. Dr. Gillespie has received special leave of absence to deliver these lectures in this country and Canada.

Of Doctor Gillespie it can be said that he is one of the outstanding psychiatrists in England. He served, however, for several years as a member of the faculty of Johns Hopkins University, Baltimore. He has written several books and contributed extensively to medical literature. His observations made under war conditions should be of interest to American psychiatrists in formulating

plans for maintaining civilian morale in wartime. He will discuss the problems of psychiatry of national defense under the title "Psychoneuroses in Peace and War and the Future of Human Relationships."

The Salmon Lectures in New Orleans will be held on November 22 sponsored by the Louisiana State University School of Medicine, Southern Psychiatric Association, New Orleans Society for Neurology and Psychiatry, Louisiana State Medical Society, and Orleans Parish Medical Society.

NEWS ITEMS

Dr. Nathan H. Polmer presided at the twentieth annual convention of the American Congress of Physical Therapy in Washington, D. C., September 1-5, 1941. Dr. Polmer also participated in an instruction seminar and spoke on "The Physiologic Effects of Heat."

It has been announced that the Rockefeller Foundation has made a liberal grant to finance a three-year study of health agencies in the United States.

CENTRAL ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS

The thirteenth annual meeting of this organization convened at the Roosevelt Hotel, October 2-4, with Dr. H. B. Alsobrook acting as general chairman. A splendid program was put on by the local obstetricians and gynecologists, plus a small group of distinguished out-of-town specialists. The attendance was large, about 400 doctors registering from some 28 states.

Chairmen of the local committees were: Ladies, Dr. E. P. McCormick; Hotel, Dr. J. F. Dicks; Finance, Dr. L. A. LeDoux; Hall, Dr. W. E. Levy; Clinic, Dr. Peter Graffagnino; Banquet, Drs. J. W. Reddoch and E. R. Guidry; Entertainment, Dr. W. R. Hardy; Golf, Dr. Harry Meyer; Lantern, Dr. R. E. Arnell; Luncheon, Dr. F. K. Vaughan; Publicity, Dr. E. L. Zander; Registration, Dr. E. C. Smith; Signs, Dr. E. H. Countiss; Transportation, Dr. H. C. Magee; Radio, Dr. George Mayer. Members of the Advisory Committee were Drs. Adolph Jacobs, H. W. Kostmayer, M. E. Lapham, W. D. Phillips, T. B. Sellers, P. T. Talbot, B. I. Burns, H. E. Miller, A. H. Gladden, Jr., Harold Cummins, and J. S. Hebert.

INFECTIOUS DISEASES IN LOUISIANA

The morbidity report of the Section of Epidemiology of the Louisiana State Board of Health showed that for the week ending September 20, the thirty-eighth week of the year, there were 338 cases of syphilis reported. Other diseases in numbers greater than ten included 44 cases of gonorrhea, 26 of influenza, 25 each of malaria, pulmonary tuberculosis, and typhoid fever, 24 of food poisoning, 21 of cancer, and 13 of pneumonia. The large

number of typhoid fever cases reported this week for the most part was confined to Avoyelles Parish, there being 13 cases listed from this particular state division. There were two cases of poliomyelitis listed, one from Bossier and one from Jefferson Davis. Five cases of typhus fever were reported, including two each from Orleans and Avoyelles and one from East Carroll. The food poisoning cases, 24 in number, had their origin in army hospitals. For the following week there were 250 cases of syphilis, followed in order of frequency by 32 of gonorrhea, 18 of pneumonia, 16 each of pulmonary tuberculosis and cancer, 15 of malaria, and 12 of influenza. Four cases of poliomyelitis arose, one each in St. Landry and Caddo and two in Jackson. Five cases of typhus fever were scattered throughout the state, no one parish reporting more than one instance. The typhoid fever incidence had fallen to only three cases this week. It is interesting to note that of the reportable diseases the following were from army hospitals: 12 cases of influenza, six of malaria, four of pneumonia, and one of diphtheria. For the week which terminated October 4, there were listed in numbers greater than ten: 238 cases of syphilis, 51 of gonorrhea, 39 of influenza, 24 of malaria, 20 of pulmonary tuberculosis, 18 of pneumonia, 12 of cancer, and 11 of scarlet fever. One case of poliomyelitis had its origin in Ouachita. Of the six cases of typhus fever, two each were found in Orleans and Beauregard, and one each in Iberia and Lincoln. Army hospitals, amongst other diseases, reported 38 of the 39 cases of influenza, and 22 of malaria. For the week which ended October 11 there were 330 cases of syphilis, 30 of gonorrhea, 22 of pulmonary tuberculosis, 14 each of typhoid fever and cancer, 12 of pneumonia, 11 of typhus fever, and 10 each of diphtheria and malaria. Parishes having more than two cases of typhoid fever were Natchitoches, St. Mary and West Carroll, with three each. There were seven cases of poliomyelitis, two among delayed reports, and no parish having more than two cases with the exception of Orleans. Of the large number of typhus fever cases, six were given as occurring in Orleans Parish, although it is quite likely that some of these cases arose in parishes surrounding the city and were imported into Charity Hospital.

HEALTH OF NEW ORLEANS

The Bureau of the Census, U. S. Department of Commerce, has reported that for the week ending September 13, there were 155 deaths in the City of New Orleans, distributed 90 white and 65 negro, with 22 being in children under one year of age, of whom four were white and eight colored. For the week which terminated September 20, there was a slight reduction in the number of deaths, these falling to 136, 71 white and 65 negro; infant deaths were 20 in number, eight white and 12 negro. The week closing September 27 showed a

still further reduction in the city deaths, 10 less than the previous week being reported, of whom 68 were white and 58 negro. A still further reduction occurred in the infant mortality, only 14 children expiring in this week, four of whom were in the white and 10 in the negro race. The first week in October, which ended on the fourth, showed figures which were virtually unchanged except that of the additional deaths in the city there was an increase in the white and a diminution in the negro rate. In so far as adult and children rates, the adult deaths in the white race were 77 in number, plus 10 infants; in the negro, 52, plus five baby deaths.

FORGER WANTED

In Re: Marvin Levinsohn, Alias Martin Davis.
Passer of Counterfeit Checks Drawn on the
"Quartermaster Bank of the United States
Army".

Superintendents of Hospitals:

This man is in an advanced stage of tuberculosis, has been receiving pneumothorax treatments, and is also suffering from gastric ulcers, according to his mother. The latter claims her son had been treated by some physician in Peek's Island, Maine, and believes he will appear at some hospital in the near future, as he will require further treatment. Levinsohn recently absconded with about \$600.00 of his mother's funds.

Marvin Levinsohn, alias Martin Davis, victimized a Philadelphia physician September 26 with a \$14 check and received \$9 in change, the doctor's fee being \$5 for a pneumothorax treatment. The doctor said Levinsohn is in absolute need of such treatments at least once every three weeks. Levinsohn also defrauded a physician in New York City on the night of September 23, calling at 8:30 o'clock and complaining of great pain. After fluoroscopic his patient and giving him two hypodermics, the doctor directed him to call at the District Health Center for further treatment and possible hospitalization, his examination showing an artificial pneumothorax of the right side. For his services, the doctor accepted Levinsohn's check for \$14 and gave him \$11 in cash. Levinsohn insisted upon the doctor examining his credentials and warned him to be careful in accepting Army checks, pointing out that he should always request identification and compare the number on the check with the number of the identification card. Levinsohn endorsed the check in the doctor's presence. This man has also passed some of these counterfeit checks on rooming house proprietors and merchants.

Should Marvin Levinsohn call for pneumothorax treatments, kindly detain him under some pretext and notify your local Police Department at

once, who will take him into custody and notify this office.

Harry D. Anheier,
Agent-in-Charge, Secret
Service Division, Treasury
Department, New Orleans.

CIVILIAN DEFENSE

According to a joint statement issued on September 4 by the U. S. Director of the Office of Civilian Defense, F. H. LaGuardia, and the Chairman of the American National Red Cross, Norman H. Davis, State and local defense councils are the official agencies responsible for the coordination of all available resources which may be required for civilian protection in the event of belligerent action. Defense Councils should therefore acquaint themselves with the resources of the local Red Cross Chapters in providing food, clothing, shelter, nursing care, transportation, and other basic necessities and should integrate them into the comprehensive local program. Duplication of trained and experienced personnel and of available supplies of the Red Cross should be avoided except where supplementation is essential to meet the anticipated needs of the community.

George Baehr, M. D.,
Chief Medical Officer.

HOSPITAL BED FACILITIES

The most widespread survey ever made of hospital bed facilities in the United States, released today by the Census Bureau of the Department of Commerce, reveals that 1,282,785 beds were available in 9,614 institutions, for the medical care of the American people in 1939.

The country's 6,991 hospitals and sanatoriums provided the great bulk of this care—355,145,063 patient-days, or the equivalent of one week-end stay in a hospital each year for every person in the United States. Infirmaries and nursing, convalescent, and rest homes provided the remainder.

Hospitals and sanatoriums had 1,186,262 beds—92 per cent of the nation's total. Census Bureau figures show that the average hospital had 169 beds and served 5,000 families.

Hospital facilities for the country, however, were well below the "minimum requirements for adequate medical service" set up in 1933 by the Committee on the Costs of Medical Care. Here's how the number of hospital beds per 10,000 population compares:

	Beds Available	Beds Needed
General	38	46
Tuberculosis	6	14
Mental	46	56
Total	90	116

To meet this minimum of 116 beds per 10,000

population, the United States would have to build 2,000 more average-size, 170-bed hospitals.

Even counting in all the beds available in infirmaries and nursing, convalescent, and rest homes, the Census figures show that 26 states had inadequate hospital facilities—fewer than 100 beds per 10,000 population. Eighteen states had between 100 and 124 beds—approximately adequate facilities. Massachusetts, New York, Colorado, Maryland, and the District of Columbia had good facilities—more than 124 beds per 10,000 population.

New York state alone had 192,345 medical-care beds, or more than one-seventh of the nation's total.

In 1939, general hospitals were operating at 70 per cent of capacity, tuberculosis hospitals at 85 per cent, and mental hospitals at 95 per cent. The Census Bureau noted that many mental hospitals are overcrowded, due to rapidly increasing hospitalization for this type of illness.

Although only 594 hospitals—less than one in ten—were for nervous and mental patients, they had 602,850 beds or more than one-half of the total for all types of patient. They gave 208,466,000 patient-days of care.

The 5,912 general hospitals gave 122,467,000 patient-days of care, and the 485 tuberculosis hospitals 24,212,000 patient-days.

Approximately 77 per cent of the care rendered in 1939 was in state, local and federal government-controlled hospitals, 20 per cent in non-profit institutions and 3 per cent in proprietary institutions, the Census Bureau noted. The large proportion of care financed by taxes is due to government tuberculosis sanatoriums and government hospitals for mental patients.

MEDICAL-CARE BEDS IN THE
UNITED STATES

	Total number of beds	Beds per 10,000 population
<i>Good Facilities</i>		
Dist. of Columbia.....	12,858	194
Massachusetts	66,205	153
New York	192,345	143
Colorado	15,427	137
Maryland	22,836	125
<i>Adequate Facilities</i>		
California	85,365	124
New Hampshire	6,028	123
Vermont	4,387	122
Rhode Island	8,659	121
Washington	20,780	120
Connecticut	20,257	119
Delaware	3,133	118
Wyoming	2,903	116
Minnesota	31,897	114
New Jersey	47,494	114
Oregon	12,238	112
Wisconsin	35,174	112

Montana	6,169	110
Nevada	1,216	110
Illinois	84,871	108
Michigan	55,844	106
Arizona	5,242	105
North Dakota	6,470	101
<i>Inadequate Facilities</i>		
Maine	8,282	98
Pennsylvania	93,756	95
Iowa	23,475	93
South Dakota	5,772	90
Missouri	33,850	89
Kansas	16,070	89
Nebraska	11,506	87
Ohio	59,823	87
Indiana	29,449	86
Virginia	22,929	86
New Mexico	4,363	82
Louisiana	18,357	78
Utah	3,988	73
Oklahoma	16,858	72
Idaho	3,748	71
Florida	13,372	71
Kentucky	18,795	66
Texas	38,821	61
West Virginia	11,477	60
North Carolina	20,711	58
Tennessee	16,514	57
Arkansas	10,946	56
South Carolina	10,670	56
Georgia	17,222	55
Alabama	14,547	51
Mississippi	9,686	44
U. S. total	1,282,785	97

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Louisiana State Medical Society

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OUACHITA PARISH NEWS

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The Women's Auxiliary to the Ouachita Parish Medical Society met at a luncheon meeting Tuesday, September 9, at the Lotus Club, Monroe. The new president, Mrs. D. T. Milam, presided at the meeting.

Luncheon was served in one of the dining rooms. Dr. H. S. Coon, President of Ouachita Parish Medical Society, was guest speaker and gave a talk on new trends in medicine. Dr. Coon complimented the club on the well planned program which has been outlined for 1941-42.

ORLEANS PARISH

President—Mrs. James W. Warren.
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 Parliamentarian—Mrs. Joseph LaNasa.
 Historian—Mrs. Waldemar R. Metz.
 Publicity—Mrs. Frederick L. Fenno.

As a contribution to the National Defense Program, the Woman's Auxiliary to the Orleans Parish Medical Society has appropriated a sum of money to be used for the benefit of patients in the La-Garde General Hospital in New Orleans. Subscriptions to magazines, games and tables are being purchased for the use of the patients. In order that we might be certain of getting periodicals and games that are really desired by the boys, the superintendent of the hospital and the head of the social service department were contacted and the lists furnished by them will be used in making purchases.

SOUTHERN MEDICAL ASSOCIATION

The Southern Medical Association Auxiliary will hold its annual meeting November 10-13 with headquarters at St. Louis, Missouri. Your president extends this invitation to all members of Louisiana State Auxiliary and hopes many of you will avail yourselves of the privilege.

I would appreciate having news of parish auxiliaries for the journal, so that all auxiliaries may benefit from their diversified programs.

Respectfully submitted,

Mrs. Jules Myron Davidson,
Publicity Chairman.

BOOK REVIEWS

The 1940 Year Book of Public Health: Edited by J. C. Geiger, M. D., Dr. P. H. Chicago, The Year Book Publishers, 1940. Pp. 560. Price \$3.00.

This, the first of a promised series of year books on public health, compares favorably with similar compilations, as the year books on general medicine and pediatrics, produced by the same publishers.

From the great number of public health articles appearing between February, 1939, and August, 1940, 421 of those most pertinent to present day interests appear in abstract form to create the body of the book. Over half of these abstracts are followed by good editorial comment. Author and source are given for each article.

While all fields of public health interests are included, greatest space is taken by communicable diseases and epidemiology, child hygiene and administration. Numerous diagrams, charts, and tables are included. A double system of indexing (subject material and author) facilitates use of the book. Binding and type of print are similar to those of the other year books of the series.

For those having need of frequent references to material in several fields of public health interest, this manual should be of especial value. Also, a year-after-year file of these books should serve as a reliable cumulative reference file.

RALPH H. HEEREN, M. D.

Strange Malady, a Story of Allergy: By Warren T. Vaughan, M. D. New York, Doubleday, Doran & Co., 1941. Pp. 268; illus. Price \$3.00.

Using the history of allergy as a yarn, Dr. Vaughan has woven what the scientist knows of clinical allergy into a fabric appreciable to the lay eye. The reader is introduced to the pioneers in immunology, shares their problems, and follows them in their experiments. When the last page is reached, the reader is in a position to understand the nature and management of allergic disease. If he be one of the five per cent of humans afflicted with this "strange malady," he should

be a more cooperative patient than when he first turned the flyleaf.

The book is replete with photographs of the early allergists. Illustrative sketches help the reader visualize the more complicated immunologic phenomena. A foreword by Dr. E. R. Long gives the reader a good idea of what to expect in the ensuing pages.

STANLEY COHEN, M. D.

Emergency Surgery: By Hamilton Bailey, F.R.C.S. (Eng.). 4th ed. Baltimore, William Wood, 1940. Pp. 944; illus. pl. Price \$15.00.

This textbook is divided into 70 chapters, embracing all systems of the human body, and contains 93 beautiful and clear illustrations, a large number of which are in color. It is worth a space in anyone's medical library.

The text is replete with many valuable hints in various procedures: methods of preoperative preparations and postoperative care; clear details in surgical technic, concerning indications, procedures and postoperative complications requiring prompt attention. The book stands out as vivid evidence of excellent and well-organized labor.

ADOLPH JACOBS, M. D.

A Manual of Allergy: By Milton B. Cohen, M. D. New York, Paul B. Hoeber, Inc., 1941. Pp. 156. Price \$2.00.

This is one of several medical primers especially compiled for use by the general practitioner to obtain a fairly accurate picture of the whole field of allergy. While the study of its various chapters may equip the family physician with an intelligent conception of his case and enable him to direct the treatment, it leaves him with the conviction that the field is too wide and intricate for him to do full justice to his allergic client without securing the cooperation of a specialist.

The subject is gracefully and simply offered. The following chapters deserve special study: (1) the one explaining how allergy develops and

progresses in children; (2) another dealing with history taking, and (3) another explaining the values of skiagraph in detecting demineralization caused by food allergy or as is sometimes the case by too strict dieting.

The author rightly condemns the use of opiates in asthma and cites fatal cases where opiates may have played unfavorable part.

The reviewer cannot too strongly emphasize the fact that the manual should only be considered as an introduction to standard books on allergy by those who will seriously assume the responsibility of treating patients with hay fever, asthma or other forms of allergy.

N. F. THIBERGE, M. D.

Plagus on Us: By Geddes Smith. New York, The Commonwealth Fund, 1941. Pp. 365. Price \$3.00.

The author of this volume is a member of the staff of the Commonwealth Fund and, though not trained in medicine, has accomplished a notably satisfactory work in popularizing epidemiology by providing readily understandable and accurate accounts of a number of epidemics (typhoid fever, amebic dysentery, and plague). There is in the foreward a disclaimer of any attempt at presenting original material and a special acknowledgment of help received from Drs. Clarence L. Scammon, Benjamin White and Wade H. Frost. Anyone following the guidance of these men could hardly go wrong. The volume consists of prologue, epilogue, and seven chapters of text. In the prologue the present disturbed condition of the world is suggested as a fitting setting for the peril of pestilence.

Dr. Smith makes clear that Pasteur's claim to fame is based on conclusive experimentation where others surmised; and that Koch's great contribution was of technical methods.

There is a discussion of infection and immunity mechanisms that for the average medical reader will be found simpler and decidedly more readily understood than the purely technical presentations of most specialists. The same holds for the discussion of the relation of parasite and host.

The complexities of the problems of malaria control could hardly be better stated even if much more space were given to it. Dramatic accounts of yellow fever in 1878 are given. Residents of New Orleans will be interested in the following from the quarantine officer—clearly forecasting the day when yellow fever would not be regarded as a filth disease (p. 23): "It is disheartening to the enthusiastic sanitarian to drive along the filthy open canal in the center of Melpomene street, and contrast the comparative exemption of that thoroughfare from sickness, with the frightful devastation which occurred in the clean and beautiful residences about the intersections of Euterpe with Carondelet and Baronne streets."

The influenza outbreak of 1918 is dealt with

somewhat luridly, though the reviewer could not detect a definite exaggeration or misstatement of fact, and what probably is more important, the author suggests that we are no better prepared to deal with influenza than we were 23 years ago. There is an interesting chapter on past thinking in which the history of the development of the idea of contagion is set forth and in which Fracastor is credited with a less clear perception of infection than usually is accorded him.

There is a particularly sane paragraph on typhoid vaccination which the author rightly designates "a confession of failure in the decencies of sanitation."

In Chapter 7, under detective work, will be found a number of well chosen examples of the procedures required to detect sources and channels of infection.

The book contrasts the death rates of many diseases in times past with the present thus illustrating the progress in public health; it equally frankly sets forth failures as in influenza and the common cold.

The epilogue is given over largely to problems awaiting solution and a sober appraisal of what has been accomplished and what remains.

The physician will find the book a very interesting and helpful summing up of our knowledge in many fields and of our ignorance in others; the teacher of epidemiology will find handily brought together useful material in his special field; the intelligent layman should enjoy it and find little or nothing that will be a severe tax on his understanding.

G. W. McCoy, M. D.

Age Morphology of Primary Tubercles: By Henry C. Sweany, M. D. Springfield, Ill., Charles C. Thomas Co., 1941. Pp. 265. Price \$5.00.

This monograph is the outcome of a study revealing the evolution of the tubercle as it occurs in the majority of cases. The nature of the study is best described in the author's words in which he states that "all factors pertaining to the main thesis—the relationship of age to morphology of primary tubercles" must be carefully elucidated and properly evaluated. The author is quick to admit the controversial nature of the subject, the fact that it is to a great extent theoretical and that there is "no claim to a finality." Numerous and excellent illustrations are present throughout the work and help not a little in making more graphic the facts presented in the author's thesis.

The reviewer has no intention of discussing the book in any detail. The presentation is a novel one and an excellent pioneer in a field the importance of which is at once apparent to the phthisiologist, pathologist and roentgenologist. The work is provocative of much thought, stimulating to further endeavor, and most convincing in great part. The author is one of the leaders in this country in the field of pathology of tuberculosis and con-

sequently this work bears the impress of comprehensive erudition.

There is a fine bibliography and index. The format of the book is one to make a reading of the volume a pleasure.

I. L. ROBBINS, M. D.

The Pharmacology of Anesthetic Drugs: By John Adriani, M.D. 2nd ed. Springfield, Ill., Charles C Thomas Co., 1941. Pp. 86. Price \$3.50.

This outline of the pharmacology of anesthetic drugs contains a condensed compilation of theories and facts. The author has selected the material carefully and intelligently, and has shown sound judgment and skill in the difficult handling of controversial matter.

The diagrammatic arrangement of the subject matter is intended to help focus the reader's attention. In this reviewer's opinion, however, this goal is not attained. The book contains altogether too many over-simple drawings which cannot be of any help to either student or physician. Effects of anesthetics on urine formation and composition, for instance, are illustrated by a diagram of a partially filled test tube. While the pedagogic value of this sort of text illustration is indisputable when dealing with some types of basic instruction, it seems out of place in a book which is obviously conceived and written for quite an advanced group of readers.

Containing chapters on premedication, analeptics, on complications and clinical accidents in anesthesia, the book is comprehensive. In spite of the minor objection stated above, it is strongly recommended for use in connection with textbooks and original publications.

GERHARD KATZ, M. D.

Proctology for the General Practitioner: By Frederick C. Smith, M.D., M.Sc. (Med.), F.A.P.S. 2nd rev. ed. Philadelphia, F. A. Davis Co., 1941. Pp. 466; illus. Price \$4.50.

For the field it proposes to cover, this book succeeds exceedingly well. It is concise but clear in its text, authoritative in its statements, and generous in its quotations. It is amply illustrated with numerous pictures, diagrams, and plates. It is a good book for short, ready reference.

MAURICE LESCALE, M. D.

Dietetics for the Clinician: By Milton A. Bridges, B.S., M.D., F.A.C.P. 4th ed. rev. Philadelphia, Lea and Febiger, 1941. Pp. 960. Price \$10.00.

This posthumous fourth edition is proof both of its popularity and worth. It also indicates the growing importance and rapid advances made in the science of nutrition. The section on vitamin factors in the diet has been brought up to date and is a resumé of this live and ever changing topic. Probably one reason for the popularity of this book is the ease with which one may refer to the dietetic management of most of the diseases of adults.

While one may differ as to the value of a special diet in a certain morbid state, it is of interest to learn the viewpoint of an authority. The appendix, bibliography and index take up the last 361 pages of the book. A tremendous amount of information is found in this section with easy reference. In summary, I would state that this fourth edition surpasses any of the previous ones in value to the clinician.

RANDOLPH LYONS, M. D.

School Health Services: A Study of the Programs Developed by the Health Department in Six Tennessee Counties: By W. Frank Walker, Dr.P.H., and Carolina R. Randolph. New York, The Commonwealth Fund, 1941. Pp. 172; 104 tables; 12 charts. Price \$1.50.

This study concerns the conduct of school health services among some 58,000 Tennessee children. It was carried on over a period of six years in six counties having had full time health departments for five to fifteen years before beginning of the study and was directed jointly by the State Department of Health and the Commonwealth Fund.

Through use of such criteria as (1) extent of correction of physical defects noted; (2) relation of nursing follow-up to number of corrections made; and (3) differences in physical condition between those who have had and have not had pre-school supervision, school health service evaluations are attempted.

This study as an analytic evaluation offers many suggestions toward making school health work effective.

RALPH H. HEEREN, M. D.

PUBLICATIONS RECEIVED

D. Appleton-Century Co., Inc., New York City: *Textbook of General Surgery*, by Warren H. Cole, M. D., F.A.C.S., and Robert Elman, M. D.

Columbia University Press, New York City: *Immunity against Animal Parasites*, by James T. Culbertson.

Colwell Publishing Company, Champaign, Illinois: *Dr. Colwell's Daily Log for Physicians*, 1942.

Grune & Stratton, Inc., New York City: *Shock Treatment in Psychiatry: a Manual*, by Lucie Jessner, M. D., Ph.D., and V. Gerard Ryan, M. D.

Paul B. Hoeber, Inc., New York City: *Diseases of the Thyroid Gland*, by Arthur E. Hertzler, M. D.

Johns Hopkins Press, Baltimore: *Immunization to Typhoid Fever*, from the Research Laboratories of the Army Medical School, Washington, D. C.; *The American Journal of Hygiene Monographic Series*, No. 17, September, 1941.

Charles C Thomas, Springfield, Illinois: *Wounds and Fractures*, by H. Winnett Orr, M. D., F.A.C.S. *The Essentials of Occupational Diseases*, by Jewett V. Reed, B. S., M. D., F.A.C.S., and A. K. Harcourt, B. S., M. D. *A Manual of the Treatment of Fractures*, by John A. Caldwell, M. D.

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CIRCULATORY FAILURE IN ACUTE INFECTIOUS DISEASES*

N. JUDSON BENDER, M. D.†
SHREVEPORT

Since newer and more efficient agents for treating the acute infections have been recently added to the physician's therapeutic armamentarium, it becomes necessary that he re-examine his ability to prolong life long enough for these agents to produce their curative action. All supportive aid possible must be given to prevent the breakdown or failure of some part or organ of the body before a cure is effected by the more specific treatment.

Circulatory failure not infrequently occurs under the added burden of a severe infection.

NORMAL RESPONSE OF BODY TO FEVER

The toxins of infecting organisms upset the heat balancing mechanism of the body. They reduce heat loss by initial vasoconstriction whereby normal heat loss by radiation and by convection is prevented and they directly stimulate the centers which increase heat production. With vasoconstriction of the skin capillaries, the cutaneous sense organs are not bathed by the warm blood from the deeper organs. The patient experiences a chill or chilly sensations. Later, the heat control centers respond and vasodilatation occurs. The skin warms up, becomes flushed, and the patient experiences the sensation of being too hot.

*Read before the sixty-second annual meeting of the Louisiana State Medical Society, Shreveport, April 22, 1941.

†From the Medical Section, North Louisiana Clinic, Shreveport.

Continued fever is due chiefly to a raised threshold for heat loss.

The advent of fever is accompanied by an increase in metabolism. The increase in oxygen consumption is taken care of by an increase in cardiac output, which is at first brought about by an increase in heart rate (sinus tachycardia). As the fever increases, the cardiac output falls and the proportion of arterial blood used during each circuit through the capillaries is increased. The heart rate is also reflexly accelerated by vascular dilatation.

Fever of acute infections affects the blood pressure very little. A slight variation in either direction is normally found. Fever causes an initial decrease of circulatory blood volume due to water loss. There is, however, a gradual shift of water from the tissues to the vessels, which tends to increase the circulatory blood volume.

TYPES OF CIRCULATORY FAILURE IN ACUTE INFECTIOUS DISEASES

Circulatory failure in acute infectious diseases is always one of three types: heart failure, peripheral circulatory failure, or a combination of these. Since a normal, healthy heart practically never fails during an acute infectious disease, except in diphtheria and rheumatic fever, the most frequent type of circulatory failure is the peripheral type. However, it is of the greatest importance to determine the type of failure in each case.

HEART FAILURE

Electrocardiograms taken during infectious diseases have revealed myocardial damage hitherto unsuspected. In most instances these electrocardiographic changes, caused by toxic products, revert to normal

after complete recovery. A previously diseased heart fails because its already impaired function is further impaired by the increased burden that acute infection places upon it. Thus, the heart is required to increase greatly its work in the face of toxic damage superimposed upon an already diseased myocardium. In pneumonia and pertussis there is the additional factor of myocardial anoxemia produced by impaired aeration of the blood due to loss of much capillary space in the diseased lung. There is also the additional factor of increased muscular effort necessary to pump the blood through this diseased organ.

The clinical picture produced by heart failure of this type is one familiar to all. The symptoms of either right-sided failure with engorgement of the systemic veins, or left heart failure with engorgement of the pulmonary circulation, may predominate. The pulse is rapid, often weak. It must be cautioned, however, that the rapid, feeble pulse accompanied by distant heart sounds is more characteristic of peripheral circulatory failure. Arrhythmias may occur, but are usually transitory. Heart block is rare except in diphtheria. The respirations are increased out of proportion to the fever. There is cyanosis, which may be of a grayish hue if the heart failure is accompanied by peripheral circulatory failure. The apex beat is weak, or diffuse, and may be impalpable. The heart is enlarged to the right or left and systolic murmurs may develop due to the relative insufficiency of the auriculo-ventricular orifices. The blood pressure is usually depressed and the electrocardiogram reveals evidence of failure not otherwise manifested. More infrequent findings are those of substernal oppression, pitting edema, cardiac pain, and swelling of the superficial veins and liver. Gallop rhythm is a certain sign of heart failure.

TREATMENT OF HEART FAILURE

In the treatment of heart failure in acute infectious diseases the first responsibility is to prevent it. Prevention and active treatment are best carried out by careful attention to general measures:

(1) Rest: This includes early and late rest in all acute infections where one can anticipate myocardial damage or where one has been able to detect early circulatory embarrassment.

(2) The administration of ample anti-toxic agents.

(3) Adequate oxygen supply: Oxygen should not be withheld until anoxemia has caused damage to the myocardium and other organs.

(4) Adequate nutrition: It is especially necessary to supply an abundance of carbohydrate and protein. The old so-called "starvation diet" of typhoid fever is an outstanding example of damage wrought by malnutrition.

(5) The administration of glucose and physiologic saline solutions to combat dehydration.

Glucose has a definite, beneficial effect on myocarditis. Several injections may be given initially in doses of 20 grams of 50 per cent solution intravenously, supplemented by insulin. Thereafter, a 10 per cent solution of glucose with normal saline is given to supply needed fluids.

In cardiac emergencies adrenalin is the most reliable drug. However, it must be remembered that vasoconstrictor drugs, such as adrenalin, caffeine, ephedrine, camphor in oil, and posterior pituitary, are of no value as permanent circulatory stimulants and their action is not nearly so effective as the other more general measures.

Digitalis is indicated only when evidence of congestive failure is present. It is of doubtful value in acute heart failure.

Strychnine is no longer believed to be of any value whatsoever.

Perla and Marmorston used suprarenal cortical hormone in treating 17 cases of bronchopneumonia, one case of malaria, and six cases of grippal infection. They concluded that the apparent effects were "the maintenance of normal blood pressure with prevention of collapse, a decrease in the evidence of toxicity, avoidance of distention, an improvement of appetite, an increase in the sense of well-being, and an apparent shortening of the period of convalescence."

PERIPHERAL CIRCULATORY FAILURE

Peripheral circulatory failure produces a clinical state known as shock. More is known about what happens in shock than is known about the cause of it. There is generalized vasoconstriction of the arterioles and venules throughout the body. The blood is trapped in the peripheral circulation, the capillaries are congested, and the vascular bed is greatly increased. There is increased permeability of the capillaries with leakage of plasma into the tissues, including the viscera and the skin. This results in a loss of circulating blood volume, in a decrease in cardiac output, in a lowered blood pressure, and in a decreased rate of blood flow. Hemoconcentration, increased blood potassium, and other chemical alterations of the blood occur.

The effective venous pressure is lowered, although the venous pressure in surgical shock is variously reported both increased and decreased.

Much study of peripheral circulatory failure in the acute infections is needed. While the symptoms simulate those of traumatic shock, the pathologic physiology involves other factors, such as generalized toxic tissue damage. It has already been stated that this is the most common type of circulatory failure in acute infections. The clinical picture is presented by examination of the peripheral circulation. The patient in such a state of shock has a severe infection and is restless. The skin is cold, sweaty, and there is a grayish cyanosis due to skin pallor. Only the rectal temperature is reliable. The superficial veins are collapsed. The lowered venous pressure can be estimated by observing the distance above the heart at which the veins of the hands collapse. One should determine also whether the veins of the extremities fill, and with what rapidity, when a tourniquet is applied. There is neither dyspnea nor orthopnea, although there may be rapid breathing. The radial pulse is fast, weak, or thready, and examination of the digital pulse by palpation and by direct inspection of the nail bed and the finger tips with a flash light, reveals the absence of capillary pulsations.

The arterial blood pressure is low and systolic sounds on auscultation over the femoral and brachial vessels are absent. This above picture is in marked contrast to that of a patient with infection, high fever, and vasodilatation in which the increased cardiac output is manifested by a warm, flushed skin, by a full bounding pulse, by capillary pulsations, by systolic sounds over the brachial and femoral vessels, and by rapidly filling veins when a tourniquet is applied.

Occasionally in acute infections due to an exaggerated response of the body to fever, there is a peripherally dilated arterial bed with a moderately low blood pressure. One should not confuse such a picture with peripheral circulatory failure.

In addition, the physician should constantly bear in mind that circulatory failure may be both cardiac and peripheral failure.

TREATMENT OF CIRCULATORY FAILURE

The treatment of peripheral circulatory collapse consists essentially in relieving pain, in the application of external heat, in the administration of oxygen, in the replenishing of fluid loss due to a depleted circulatory system, in transfusions, and in other special procedures for the correction of the pathologic physiology.

Glucose and normal saline should be given intravenously. Transfusions increase venous return by filling the vascular tree. Whole fresh blood is superior to preserved blood or to old preserved blood plasma. However, recent clinical and experimental work tends to show that the administration of concentrated plasma may be the best means of overcoming oligemia. It has been demonstrated that hemolyzed blood causes vasoconstriction and that many products of deterioration in preserved blood are toxic.

Digitalis is ineffective and, in fact, contraindicated, because it tends to decrease circulating blood volume. Strychnine, coramine, and caffeine are also harmful.

Paredrine and paredrinol have been shown to increase blood pressure. Altschule and Iglauer demonstrated that in a normal man paredrine had a prolonged pressor action,

did not increase cardiac output, and did not cause psychic stimulation. Stead and Ebert observed the effect of paredrinol on ten patients with infectious diseases, eight from acute infectious diseases and two from military tuberculosis and found little improvement. Since they found paredrinol beneficial in circulatory collapse due to hemorrhage, they concluded that its failure in collapse due to infectious diseases was due to the combination of factors causing this different type of collapse and not to simple blood loss.

The function of the suprarenal cortex has been shown to be diminished in the course of infections. The use of suprarenal cortical extract in the treatment of acute infectious diseases by Perla and Marmorston has already been referred to under the treatment of heart failure. However, Scudder has reported considerable success in the treatment of surgical shock using eschatin (suprarenal cortical extract) and hypertonic sodium chloride solution.

SUMMARY

Circulatory failure in acute infectious diseases is of three types: heart failure, peripheral circulatory failure and a combination of these.

It is of extreme importance to determine the exact type of failure since the treatment varies in each type. The treatment of heart failure consists essentially in careful attention to general measures, in the administration of glucose, and possibly in the use of suprarenal cortical hormone. The treatment of peripheral circulatory failure consists of measures to replenish the fluid loss in the system and of other special procedures for correcting the abnormal physiology.

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DISCUSSION

Dr. M. D. Hargrove (Shreveport): Dr. Bender has discussed an important subject, namely the types of heart failure that occur in infections, particularly infectious diseases. One of the most important points is to be able to differentiate between the two types of failure that may occur. As he said, it may be central or peripheral, and the essential point is to be able to differentiate between these two because the treatment is so radically different.

One picture is that of shock. There is not actual blood loss and in so far as I know, studies of blood volume in infectious diseases have not shown any great variation from normal. The exact mechanism involved in the production of the picture is uncertain. It may be due to toxic substances acting on the capillaries or to anoxemia. Regardless of the cause, the picture is one of peripheral circulatory failure, and the treatment should be directed accordingly and not to the heart.

In the course of acute and infectious diseases, actual cardiac damage occurs rather infrequently with few exceptions. It is true that electrocardiographic examinations of patients with infectious diseases will show some changes, particularly in the T wave, but these are usually reversible. One might conclude that the damage is in the nature of a toxic reaction which ordinarily reverts to normal. Diphtheria is one of the exceptions, in that frequently serious myocardial disease may result therefrom. One should always remember this fact and be sure to give the patient adequate rest in order to protect his heart. Frequently though, even in diphtheria, the evidences of heart damage present during the course of the disease will revert to normal.

Recognizing that there may be these types of circulatory failure, it seems that the best approach to prevention, is in energetic and adequate treatment of infectious diseases and infections before there has been time for these changes to occur. The adequate use of antitoxins and the sulfanilamide group should help to avoid serious cardiac damage.

Dr. J. H. Musser (New Orleans): I merely want to reiterate what has been said by Dr. Bender in his excellent paper and by Dr. Hargrove in his discussion; that it is really of extreme importance to differentiate between the two conditions, circulatory and cardiac failure. Actually, you may

kill your patient if you give the treatment which is not the one indicated. In other words, you may do more harm than good. I think this paper is particularly appropriate because of the fact that most of the symptoms of peripheral failure are highly suggestive of heart failure and the tendency has been to treat these patients as having acute failure of the heart.

In one sentence, Dr. Bender made reference to diphtheria and to rheumatic fever. I would like to say one word about diphtheria, namely, that the degree of heart involvement is often out of proportion to the severity of the disease or to the local expressions of the disease. I have seen in the contagious disease wards of Charity Hospital in New Orleans children with minimal involvement,—if you can speak of diphtheria with minimal involvement,—of one tonsil, or possibly two tonsils, who have had antitoxin and have recovered to all intents and purposes, I have seen these children attempt to climb out of bed, keel over and die. So, I am quite emphatic in ward rounds with the senior students, to try to impress on these young men the importance of prolonging convalescence in diphtheria, irrespective of the severity of the disease. I think if you will give the patient after diphtheria a long convalescence, and convalescence in bed understood, the likelihood of cardiac injury is minimized. If you ever have the tragic experience of having a child who is well, so far as you can tell clinically, do something rather violent and then suddenly expire, you will realize that the point I have just said is really quite important. So I insist with these students of mine that they keep the child in bed for a period of at least three weeks, and thereafter for another period of three weeks, permitting that child to take only very limited exercise.

Dr. Ralph Talbot (Monroe): Dr. Bender, I note in peripheral circulatory failure sometimes there is a low blood sugar. Now, is that always the case in infectious diseases where there is circulatory failure? I had a patient with acute gastroenteritis with circulatory failure and took the blood sugar and it was about 50 mg. Is it typical that there is low blood sugar in circulatory failure?

Dr. N. Judson Bender (in closing): In reply to Dr. Talbot's question, the blood sugar, as a general rule is reduced. A great deal needs to be done about peripheral circulatory failure in infectious diseases, particularly in regard to blood chemistry changes.

Briefly, I have tried to present this so that it would stimulate all to differentiate these types in order that life may be spared during the few critical hours of a severe infection and ultimate recovery brought about.

THE NEUROSURGICAL TREATMENT OF SCIATIC PAIN

WITH NOTES ON 50 CONSECUTIVE CASES*

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As early as 1911 surgeons^{1,2} began to suggest that chronic sciatic pain could be caused by an intervertebral disk which had protruded into the spinal canal. However, it was not until 1934 that Mixter and Barr established laminectomy as the treatment for sciatica caused by nerve root compression. Since then, this disease has been universally accepted as a clinical entity and the operation for its cure is now performed thousands of times a year. This sudden appearance of a "new" disease has naturally been accompanied by numerous diagnostic tests and surgical technics, many of which have already been discarded. Modifications of early procedures have greatly facilitated both the recognition and treatment of this lesion. Obviously further evolution in the management of these cases will occur. This paper will be confined to remarks concerning the present status of the disease.

Four roots of the cauda equina, namely, the fourth and fifth lumbar and the first and second sacral, are the chief components of the sciatic nerve. Compression of any one of these roots within the spinal canal results in radiation of pain along the sciatic nerve. Intermittent root compression causes intermittent sciatic pain. If the root is severely compressed, there is partial loss of motor and sensory function in the distribution of that nerve.

Lesions of the third, fourth and fifth lumbar intervertebral disks are capable of causing compression of these roots. The offending lesion may be a discrete nodule containing nucleus pulposus, annulus fibrosis or both. Such nodules are encapsulated by the posterior longitudinal liga-

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ment. The lesion may be an unattached piece of fibrocartilage which has been extruded from the disk and has broken through the ligament. Also a disk may bulge or protrude far into the spinal canal and yet be apparently intact. The point at which a root of the cauda equina is vulnerable to compression by one of these lesions is at or near its point of fixation, namely the point at which it leaves the dural sac. A final and important factor is the counter-pressure provided by the ligamentum flavum and the lamina which lie in contact with the posterolateral surface of the root.

DIAGNOSIS

The most important single factor in making a diagnosis of sciatica resulting from compression of a nerve root by a ruptured disk is the history. In a large proportion of cases the lower spine has been injured by falling, lifting or jumping. Intermittent attacks of low back pain over a period of months or years follow. It is assumed that this "lumbago" results from progressive changes in the degenerating intervertebral disk. Eventually, though perhaps not for many years, a portion of the diseased disk encroaches upon the spinal canal and irritates a nerve root with resulting radiation of pain down the back of the thigh and calf to the foot and even to the toes. Pain in the large toe is suggestive of rupture of the fourth disk. Pain in the smaller toes indicates rupture of the fifth disk. After several weeks a change of posture and a protective muscle spasm may cause a flattening of the lumbar lordosis, a list of the spine to one side, and perhaps complete disappearance of the sciatic pain. However, other attacks follow and in time the sciatica becomes chronic. With increasing compression of the nerve root the patient notes numbness in the calf, foot and toes. In severe compression there may be objective evidence of diminished skin sensibility. The motor weakness is always slight or undemonstrable because each muscle receives impulses from more than one nerve root. The Achilles reflex can disappear in rupture of the fifth disk. The

reflex persists or at most is merely depressed in rupture of the fourth disk. Coughing and sneezing cause intensification of the sciatica and forward bending is intolerable. Eventually that pain may keep the patient in bed or force him to use a cane or crutches.

NEUROLOGIC EXAMINATION

A complete neurologic examination is always made. Special attention is paid to the posture and limp. On palpation a point of tenderness is usually found over the fifth spinous process or over the lamina of the fourth or fifth vertebra on the side of the sciatica. A slight weakness of muscles can at times be demonstrated by having the patient compare his ability to stand first on one heel and then on the other. The difference, if any, in the ankle jerks can best be brought out with the patient kneeling in a chair. Diminished skin sensibility over certain areas of the toes, feet and calves is searched for with a pin and a piece of cotton. The angle to which straight leg raising on the two sides can be carried without pain is determined.

ORTHOPEDIC EXAMINATION

During the last few years it has often been said that patients with sciatica sometimes have unnecessary laminectomies and that proper orthopedic treatment would have provided relief. To avoid such criticism and to eliminate errors, 88 per cent of the last 50 operative cases have been referred by or referred to orthopedic surgeons. In the last ten months of the seventeen month period which this series covers no patient has been operated on without orthopedic advice. In many instances the orthopedic surgeon has treated the patient for weeks or months before recommending laminectomy. In an additional 25 cases of suspected ruptured disk the patients have not returned for laminectomy because the orthopedists have established other diagnoses or have procured relief of the sciatic pain by other methods.

In numerous instances an orthopedic surgeon has requested to be present at operation in order to obtain further information

concerning the mobility of the articular facets. In only one instance, however, has an orthopedist proceeded with spinal fusion after removal of the extruded part of the disk. Nevertheless, it is my belief that combined laminectomy and spinal fusion will be performed more often in the future when back pain due to an unstable lumbosacral joint is a major feature of the clinical picture.

An essential part of the orthopedic study is the making of anteroposterior, lateral and oblique roentgen films of the lumbar spine. Such films, however, contribute little or nothing in establishing the diagnosis of this form of sciatica. Also, the discovery of arthritis or anomalies does not necessarily cast doubt upon the diagnosis of ruptured disk. The chief value of films is in ruling out bone tumors, metastatic carcinoma, spondylolisthesis and in determining the condition of the lumbosacral disk and corresponding articulations.

It is my observation that the orthopedic surgeon is chiefly concerned in these cases of ruptured disk with reduction of the nerve root compression by postural means. This includes bed rest with flexion of the spine and hip by means of traction, and maintenance of proper position by a plaster jacket or back brace, correct shoes and postural exercises. In many advanced and typical cases the orthopedists refuse to attempt treatment and recommend immediate laminectomy. In brief, operation is reserved for those patients whom the orthopedic surgeon is unable to help.

MYELOGRAPHY

Until recently the diagnosis of ruptured disk has usually been established by roentgen ray visualization of the lesion following the introduction of air or lipiodol into the spinal canal. This has been abandoned except in atypical cases in which both neurosurgeon and orthopedist are unable to make a definite diagnosis and unable to relieve symptoms by empirical measures. Air myelography was unsatisfactory except in an occasional case. Furthermore, it was a troublesome procedure to perform

and an exceedingly uncomfortable one for the patient.

Lipiodol is no longer used because: It is impossible to remove all of it at operation; it gives rise to controversy in compensation cases; it cannot be kept long because of deterioration; it provides unpleasant though transient symptoms such as neuritis in many persons; it is a troublesome procedure to carry out; and it can be misleading in laterally placed lesions of the fifth disk. However, despite the controversy which has arisen, it is generally conceded by those most experienced that there are no permanent ill effects from lipiodol which has been left in the spinal canal.³ Lipiodol has been used only three times in the last 15 cases of this series and in one of these the instillation was made before the patient was referred.

Thorotrast myelography, tried by only a few surgeons, has contributed some interesting anatomic information but has too many serious disadvantages to be given further consideration.

TOTAL PROTEIN CONTENT OF SPINAL FLUID

One of the laboratory tests which at first seemed to assist the clinician in determining the etiology of sciatica was analysis of the spinal fluid, particularly as to its protein content. Since the protein content is elevated in only about 50 per cent of proved cases of ruptured disk, the test is misleading rather than helpful and should be discarded. In fact, spinal puncture should not be performed in cases of ruptured disk unless there is some special indication.

SUMMARY OF DIAGNOSTIC MEASURES

In brief, except for routine roentgen films, laboratory tests have no place in the diagnosis of the majority of cases of sciatica due to rupture or protrusion of an intervertebral disk. The diagnosis is a clinical one made by neurosurgeon and orthopedic surgeon working in collaboration. The indication for laminectomy is incapacitating chronic sciatic pain, with or without back pain, which cannot be relieved by orthopedic measures.

SIMILAR LESIONS CAUSING SCIATIC PAIN

A number of other lesions can simulate the clinical picture of ruptured disk. Among them are: intradural neuromas and other tumors involving a single nerve root, varicosities around a single root, infection about a root, and hypertrophy of the ligamentum flavum. The latter lesion is largely mythical and surely never the cause of sciatica in the presence of a completely normal intervertebral disk. As already pointed out the nerve root is pinched between the diseased disk and the ligamentum flavum. If the latter happens to be congenitally thick, anomalous or hypertrophied by trauma, only a slight bulging of the corresponding disk is needed to pinch the root. Other lesions which resemble somewhat the clinical picture of ruptured disk are: Sarcoma of the spine, metastatic carcinoma of the spine, spondylolisthesis and diseases of the articular facets and corresponding intervertebral foramina. It is this group which the orthopedist can recognize clinically and rescue from unnecessary laminectomy.

TREATMENT

During the early period of this "seven year old" disease the operative treatment consisted of a classical laminectomy with removal of the spinous processes and laminae of the lower two or three lumbar vertebrae. This gave a fine exposure of the dural sac, nerve roots and intervertebral disks. It facilitated transdural removal of disk nodules near the midline and removal of lipiodol. However, the modern operation, gradually evolving from a laminectomy, bears little resemblance to it. To be specific, a midline incision three inches long is centered over the tip of the posterior spinous process of the fifth lumbar vertebra. The muscles and periosteum are retracted from one side of the fifth spine exposing the laminae of the fifth lumbar and first sacral vertebrae and the intervening ligamentum flavum. The latter is removed with sharp dissection giving a glimpse of the dural sac. With a special biting instrument this interspace is gradually widened at the expense of

the two exposed laminae. The posterolateral aspect of the dural sac can be exposed for a length of one inch without complete removal of either lamina and without exposure of an articular facet. The dural sac and first sacral root are retracted toward the midline exposing the fifth disk and its lesion. Should the nerve root be perfectly free and the disk normal, the skin incision is extended upward and the fifth lumbar nerve and fourth disk are examined through the fourth interspace. If the surgeon should suspect, because of the distribution of pain and numbness, a rupture of the fourth disk rather than the fifth, the fourth disk would, of course, alone be exposed. Fortunately, the lesion is of the fourth or fifth disk in more than 90 per cent of cases.

Variations of the operative approach and the methods of handling the lesion once it has been exposed will not be discussed here. It is sufficient to say that the extruded portion of the disk is removed so that the root can no longer be compressed. In certain cases of a bulging but otherwise intact disk it is important not to attack the disk but to be satisfied with thorough removal of the overlying ligamentum flavum and bone. Frequently, in such cases I have gone so far as to open the dura and section the sensory fibers of the involved root to be certain of obtaining permanent relief from pain. The indications for this precaution seem to be diminishing but have not entirely vanished particularly in the case of an excessively bulging disk. Intradural section of the sensory fibers was carried out in 24 of the 50 cases.

The operation has three hazards, namely, accidental cutting of the dura with annoying escape of the fluid into the field, accidental pinching of the nerve root by the bone biting instrument, and tearing of the thin-walled venous plexus which lies anterior to the dural sac. Since the latter invariably occurs when the dural sac and root are retracted in exposing the disk, profuse bleeding is to be anticipated. This is the chief cause of failure in the hands of those who do not have the instruments necessary for control of bleeding.

Since the operation is performed through one of the interspaces without removal of the posterior spines, laminae or articular facets, there is no need for immobilization and there is no contraindication to walking on the seventh day.

Some aspects of the subject have of necessity been omitted from this discussion, but I will not close without referring briefly to statistics. It should be kept in mind that the patients in this group had chronic incapacitating sciatica which did not subside with treatment or the passage of time. During the seventeen month period ending April 1, 1941, 50 consecutive patients were treated by laminectomy for sciatica presumed to be due to nerve root compression. Nineteen of the patients were at Charity Hospital in New Orleans. The other 31 were distributed among six private hospitals in New Orleans. There was definite evidence of trauma as the etiologic agent in 46 per cent of the cases. In 30 per cent the patient could not recall an injury. There is no information on this point in 24 per cent. Seventy-four per cent had low back pain in addition to the sciatica. The sciatica was unilateral in 78 per cent of cases.

In view of the fact that trauma is considered the most important etiologic factor in the production of ruptured disk, it is not surprising that only 12 of the 50 patients were women. The average age of the patients was 37 years, suggesting that disks of young people are stronger and that it takes years for a disk to break up. The youngest patient was 18 and the oldest 58 years of age.

There has been correspondence with or examination of 40 of the 50 patients during the past five months. Of the 40 thus followed, 29 are classified as having a successful result, eight are improved and three unimproved. All 50 of the patients are known to be alive. The important complications were a permanent weakness of a foot in one case, temporary foot drop in another, one case of transient thrombophlebitis and 3 cases of superficial wound infection. In analyzing the type of lesion found and the

type of operation carried out it is found that in only one case was the extruded disk tissue sufficiently large to block completely the spinal canal. Weakness of the feet and urinary retention appeared a few days before operation. In four cases a free piece of fibrocartilage was found in the spinal canal. Three of the patients are cured and one is still having some pain which is not explainable except by some such hypothesis as multiple lesions. In 25 cases of discrete nodule on the disk there are only three instances of failure to obtain a cure and these patients are classified as improved. However, five patients have not been followed. Only seven of these patients had section of the sensory fibers.

Of 10 cases of bulging disk (which were not disturbed at operation) the affected root was sectioned in eight. Three have not been followed and two are considered as improved. One patient, reoperated upon because of the appearance of sciatica on the other side, is classified as a failure because of persistent pain. In four cases no abnormality was found. For reasons not apparent all four patients are better and are classified as improved. In six cases no examination or only an inadequate examination of the intervertebral disks was made. In each instance the dura was opened and the sensory fibers of the suspected root or roots were cut. Three have completely recovered; three are improved but not entirely free of pain.

SUMMARY

Rupture of the lower lumbar disks has been firmly established as a common cause of chronic sciatic pain. The diagnosis is based almost entirely on the history and clinical findings. Myelography with air or lipiodol is no longer routine but reserved for atypical cases. Spinal puncture for total protein determination has been discarded. Operative removal of the extruded portion of the disk should be done only when an orthopedic surgeon recommends the procedure. The modern operation, which requires special instruments and technic, does not weaken the back and is almost

without risk. In the series of 50 consecutive cases here reported, only three are unimproved and only one has an important complication.

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DISCUSSION

Dr. E. L. King (New Orleans): I would like to ask Dr. Echols a question, based on personal experience. I had a rather severe attack of sciatica in 1929, supposed to have been due, at that time, to bad teeth. The teeth were taken out and in six months I was all right. I did not stop work but it worried me quite a bit. Dr. Echols will

remember that about two years ago I had a mild attack. For a few months I was treated by an orthopedist and Dr. Echols, in consultation, examined me. With orthopedic treatment and diathermy I got all right. I want to know whether I am a candidate for laminectomy in the future, after two years with no trouble.

Dr. Joseph Cohen (New Orleans): I do not think that at any of our meetings have we had such an enlightening discussion of a subject that so many of us know so little about. I, for one, feel indebted to Dr. Echols for bringing this subject to our attention in such an informative manner.

Dr. Dean H. Echols (In closing): If Dr. King's sciatic pain was due to mechanical irritation of a nerve root, which is by no means certain, he is likely to have another attack soon. I hope his pain was due to some transient disturbance. Dr. King's discussion has served to illustrate the important point, namely, that the neurosurgical treatment of sciatica should be reserved for those patients whom the orthopedist cannot cure.

ACUTE MECHANICAL INTESTINAL OBSTRUCTION*

THE DANGERS OF PROLONGED PREOPERATIVE DECOMPRESSION BY MEANS OF THE MILLER-ABBOTT TUBE AND GASTRODUODENAL SUCTION DRAINAGE

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In the past few years there has been an unfortunate tendency to disregard the dictum that acute intestinal obstruction demands immediate operation. This is due largely to recognition of the important role of increased intraluminal pressure in the production of lethal changes in intestinal obstruction and to the introduction of non-operative methods for decompressing the bowel. There has been a great volume of work done in an effort to clarify our understanding of the changes that occur in intestinal obstruction. This will not be reviewed but only those factors that seem well established and of prime importance

will be presented. The rationale of certain procedures now advocated, that necessitate delay of operation, will be discussed, and reasons will be given why we are still of the opinion that immediate operation is indicated when the diagnosis of acute mechanical obstruction is made.

TYPES OF OBSTRUCTION

For logical discussion and comparison of mortality rates the usual clinical classification of intestinal obstruction is not satisfactory. What has actually happened to the involved bowel is more important in these considerations than the anatomic cause of the obstruction. In this presentation I shall use chiefly the classification based on pathologic and physiologic changes which divides intestinal obstruction into two main groups, mechanical and paralytic. A third type which is rarely seen, spastic obstruction, should be included for completeness. Mechanical obstruction may be complete or partial. Complete mechanical obstruction may be simple or strangulated. In simple obstruction there is a blockage of the lumen of the bowel without vascular disturbance. Strangulated obstruction exists when there is blockage of the lumen plus interference with the blood supply of the involved bowel. Simple mechanical obstruc-

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tion of the colon in the presence of a competent ileocecal valve presents a special problem. Gas and fluid can go from the ileum into the cecum but none can regurgitate from the cecum into the ileum; thus there is in effect a "closed-loop" type of obstruction. This allows marked distention to occur in the colon without distention of the small bowel. The discussion that follows is confined to acute mechanical obstruction. Partial or chronic mechanical obstruction and paralytic ileus are not included.

There are three main pathogenic factors in intestinal obstruction: (1) Strangulation, (2) loss of fluids and electrolytes, and (3) increased intraluminal pressure. We shall consider the role each plays in the production of lethal changes in obstruction and shall then discuss the therapeutic measures available to prevent or correct such changes.

Strangulation: This is a most important pathogenic factor. With interference of the mesenteric vessel by the obstructing mechanism, well-known changes occur. First, interference with the return of venous blood takes place, this produces edema and further compresses the vessels, and eventually the arterial system is occluded. Cyanosis develops, edema occurs, and there is a loss of plasma and whole blood, both into the lumen and into the peritoneal cavity. Changes take place in the mucosa which alter its permeability, and eventually death of the bowel wall occurs, with peritonitis, shock, toxemia, and infection.

Loss of electrolytes and fluids: In complete obstruction of the duodenum, jejunum, or upper ileum there is soon a marked loss of electrolytes and fluids that produces striking changes in the blood and normal body functions. Absorption takes place mainly in the lower ileum and colon; consequently, the secretions poured out from the liver, pancreas, stomach, and small intestines are not absorbed. This lack of absorption may produce a loss of many grams of electrolytes and as much as 4,000 to 7,000 c. c. of fluids in 24 hours. If the

obstruction is above the ampulla of Vater, alkalosis develops along with dehydration, hemoconcentration, electrolyte loss, and an increase in the non-protein nitrogen. If the obstruction is below the ampulla of Vater, a loss of electrolytes occurs first, because of loss of equal amounts of acid and base components, and acidosis develops later when dehydration has become severe. Changes in plasma chlorides, non-protein nitrogen, and blood concentration are similar to those mentioned for supra-ampullar obstructions.

It has been repeatedly shown in simple obstruction produced experimentally in dogs that the parenteral administration of glucose and sodium chloride prolongs life in both high and low obstructions. When this was first observed, investigators thought they had solved the riddle of intestinal obstruction, but, unfortunately, the same benefits do not follow in low simple obstruction in man. This has been explained as due to the difference in the musculature of the bowel in the dog and in man. The dog has a thick muscular layer that allows for only slight distention in low obstruction of the simple type. Man has much less muscular tissue, and bowel distention becomes a marked feature. With distention, segmentation of the bowel occurs to complicate the picture further, as the changes that occur concomitantly with distention and segmentation result in abnormal absorption. This produces characteristic alterations in the blood that cannot be relieved or corrected by the simple administration of sodium chloride, water, and glucose. Since low obstructions account for the large majority of intestinal obstructions occurring in man, it follows that the loss of electrolytes and fluid is secondary in importance to the effects of strangulation and increased intraluminal tension.

Increased intraluminal pressure: This is a most important factor in the production of lethal changes in intestinal obstruction in man. With complete obstruction of the small bowel there occurs, after a period of time, distention that may increase the diameter of the bowel to four or five times

its normal size. With the increase in diameter the bowel elongates and, in order to accommodate itself within the peritoneal cavity, folds on itself and kinks or segments every ten or twelve inches.¹ This produces a number of segments distended with fluid and gas which are potentially closed loops, the segment proximal to the point of obstruction being most distended.

Distention is due to the accumulation of gas and fluid in the obstructed bowel. The gas is composed of swallowed air (68 per cent²) and of gas from fermentative and putrefactive changes in the obstructed loops of bowel. The fluid is an accumulation of the secretions and excretions poured into the bowel from the liver, stomach, pancreas and bowel itself. The distention affects the mucosa, interfering with normal absorption, and after the intraluminal pressure reaches a certain level the intestinal wall begins to "weep" a plasma-like fluid.

When distention becomes great enough, the circulation of the mucosa is embarrassed and the power of selective absorption is lost, thus allowing the absorption of toxic material from the obstructed loops. In the proximal segment such changes may occur in a relatively short period of time. These facts have been conclusively demonstrated by experiments such as those of Haerem, Dack and Dragstedt³. In these experiments, a segment of the lower ileum of the dog is carefully isolated so as to leave its blood supply intact. The segment is closed at each end and the continuity of the remaining ileum is re-established. Botulinus toxin is injected into the closed loop. This toxin is not absorbed from the normal intestine in dogs or from the closed loop that is not distended, but when the closed loop is distended with air the botulinus toxin is easily identified in the blood stream. This offers an explanation of the toxemia associated with intestinal obstruction and points out the rationale of decompressive measures.

TREATMENT OF STRANGULATION

It is agreed that when strangulation is present immediate operation is imperative

to relieve the strangulation and remove the bowel if it is not viable. Viability of the bowel is indicated by the return of color after the application of hot packs, the demonstration of peristaltic waves in the involved bowel, and the presence of normal pulsations in the mesenteric vessels. If the bowel is viable, the release of obstruction alone is sufficient. If the bowel is not viable, it must be extirpated without spillage of the contents. In this instance, the most conservative procedure is the best, and this is usually exteriorization of the involved bowel with resection of the exteriorized loops, leaving a double-barreled enterostomy or colostomy. Resection with primary anastomosis is seldom indicated. Decompression can be maintained by intestinal intubation with the Miller-Abbott tube and in some cases by the Wangenstein suction drainage. If obstructive resection of the large bowel is done, a cecostomy is considered the best decompressive measure. The associated plasma loss in strangulation necessitates plasma or blood transfusions.

REPLACEMENT OF FLUIDS AND ELECTROLYTES

The administration of saline and glucose solutions intravenously aids in correcting derangements in blood chemistry by supplying fluid, electrolytes and a source of energy. Sodium chloride is useful in the treatment of both acidosis and alkalosis, provided an adequate amount of water is supplied for the kidneys. Whole blood, citrated blood, or plasma should be given if shock is present. In obstruction of the strangulated variety or of long duration, plasma or whole blood is particularly valuable. In the preoperative and postoperative management of patients with acute mechanical obstruction, the replacement of fluid and electrolytes is considered essential as an adjunct only.

DECOMPRESSIVE MEASURES

Adequate decompression will prevent and correct the ill-effects of increased intraluminal pressure. In obstruction of the simple type, decompression and replacement of fluids and electrolytes make delay of operation relatively safe and permit op-

eration to become elective. However if strangulation exists, delay of operation to obtain adequate decompression is dangerous and will lead to a very high mortality. The methods now in use for decompression are: (1) Gastroduodenal drainage of the Wangensteen type, (2) intubation with the Miller-Abbott tube, (3) nasal administration of oxygen, and (4) enterostomy or colostomy.

(1) Gastroduodenal drainage by constant suction to an inlying duodenal tube: This is the well-known method of decompression popularized by Wangensteen⁴ which effectively decompresses the upper gastrointestinal tract but is of no value for the relief of distention of a lower ileum which has become segmented.

(2) Intubation with the Miller-Abbott tube: This is a double-lumen nasal tube⁵ about 10 or 12 feet long with a balloon attached to the tip in such a way that it can be inflated and deflated. The tube is passed into the stomach with the balloon deflated. Siphonage suction is employed to decompress the stomach and the tube is allowed to go into the duodenum. The balloon is inflated after it has passed the pylorus. Peristaltic waves carry the ballooned tip into the lower small bowel and the bowel is decompressed as the tube passes downward. Fluoroscopic control is helpful, although not essential, in engaging the tip of the tube in the pylorus. Patience on the part of both patient and physician is necessary for passage of the tube. Usually, from six to 24 hours are required for the tip of the tube to reach the duodenum and from 24 to 72 hours or longer for it to reach the lower ileum. This method has an obvious advantage over the Wangensteen method in that it deflates the lower loops of obstructed small bowel where distention is most marked.

If strangulation could be definitely ruled out, this method would be ideal for simple mechanical obstruction because in this type of obstruction the most important factor in the production of lethal changes is distention in the segment proximal to the point of occlusion. Relief of distention in the

proximal segments and replacement of fluids and electrolytes allow operation to become an elective rather than an emergency procedure. Under these circumstances, operation can be performed when the bowel is collapsed, and the danger associated with handling of distended bowel can thus be avoided. However, it is not possible to be sure that the obstruction is simple and not strangulated. For this reason, the delay necessary in the use of this procedure involves the risk of allowing a bowel that is primarily strangulated to undergo irreparable damage.

(3) Nasal administration of oxygen: the nasal administration of oxygen as a decompressive measure was suggested by the work of McIver, Redfield and Benedict⁶ in 1926 but was brought into clinical prominence by Fine, Sears and Banks⁷ in 1935. This measure is based on the principle that the solubility of gases depends on their partial pressure and upon the fact that about 70 per cent of the gas in the distended bowel is nitrogen. In this procedure the tension of the nitrogen in alveolar air is lowered by displacing nitrogen with oxygen. This allows an increased amount of nitrogen to escape from the blood into the alveoli and consequently allows more nitrogen to be absorbed from the intestinal lumen.

Obviously, this method is only an aid to the relief of distention, as it removes only the gaseous portion of the material in the distended bowel. It is not advocated for prolonged preoperative use but it does have a place in the postoperative care of mechanical obstruction and in the management of paralytic obstruction.

(4) Enterostomy and colostomy: These are operative methods for decompression. Many arguments have been offered for and against enterostomy in small bowel obstruction. Enterostomy alone definitely has no place in the management of strangulated obstruction. Since the introduction of the Wangensteen and Miller-Abbott methods of decompression, it is questionable whether enterostomy should be used in any type of obstruction. If it is used, the opening

should be placed in the segment proximal to the point of obstruction, and in this location ileostomy offers no advantages over the Miller-Abbott tube and has the disadvantage of being a source of peritonitis. Jejunostomy for low ileal obstruction is not a rational procedure and certainly offers no advantage over decompression with the Wangenstein gastroduodenal suction drainage.

In large bowel obstruction, ileostomy should not be used as a decompressive measure. The ileocecal valve is competent in the majority of cases⁸ and in these instances the distention may be confined entirely to the large bowel. For the same reasons, the Wangenstein and Miller-Abbott methods of decompression are of no help in large bowel obstructions. Cecostomy or colostomy is the procedure of choice when decompression is indicated in colonic obstruction.

In complete mechanical obstruction, preoperative decompression continued over a long period of time by means of nasal tubes is a dangerous procedure. It is true that in the simple type of obstruction it is safe, but this predicates the ability to distinguish clinically between simple and strangulated obstruction, and we do not believe that this is possible in all cases. Delay of operation for as short a period as four to six hours may be sufficient to allow a viable bowel to become non-viable, to permit peritonitis to develop, or to make the difference between recovery and death. It is also true that elective operation at a time when the bowel is not distended makes operation safer and technically less difficult. However, these advantages do not compensate for the risk of delaying operation on a patient whose bowel is primarily strangulated.

DISCUSSION

Since the Miller-Abbott tube was introduced there has been a tendency toward too frequent use of this method of decompression, with consequent delay in operation. When Wangenstein popularized his gastroduodenal suction drainage there was a similar wave of enthusiasm, during which time the method was frequently used in-

correctly in intestinal obstruction with consequences with which we are all familiar. I believe that if a diagnosis of acute mechanical obstruction is made, the patient should be operated upon as an emergency procedure. During the time necessary to get the operating room ready and the patient prepared for operation, decompression of the upper gastrointestinal tract by inserting into the stomach either a Levin tube or a Miller-Abbott tube and connecting the tube with a suction apparatus, is advocated. The latter tube is preferred, as it may be left in place and allowed to go into the small bowel for postoperative decompression. Operation should not be delayed to allow the Miller-Abbott tube to pass into the small bowel. Upper gastrointestinal decompression during this period of delay relieves the distention somewhat and lessens the chance of regurgitation and aspiration during anesthesia. Also, during this period of necessary delay, normal saline and glucose solutions should be given intravenously and the patient's blood matched for transfusion. If the patient presents a picture of shock, measures to overcome shock should be instituted before operation is performed.

How can we justify our stand in regard to decompression in view of the excellent results reported by advocates of the Miller-Abbott tube? A careful study of these recent reports^{9, 10, 11} reveals several points that answer this question in part. First, the cases of mechanical obstruction reported with such low mortality figures are stated to be simple obstructions only; strangulations are excluded, as are hernias, intussusceptions, volvulus of the sigmoid and carcinoma of the colon, all of which are types of obstruction that carry the highest mortality rates (table I). Second, the case reports given do not make it clear that all the patients included actually had complete mechanical obstruction.

In further support of the stand taken on this question, a review is presented of the cases of intestinal obstruction treated by operation in the Charity Hospital of New Orleans during the past five years, in

which the effects on mortality of the presence or absence of strangulation at the time of operation were studied. There were 147 cases of simple obstruction, with a mortality rate of 17 per cent. In 108 patients who had strangulation at the time of operation, the mortality was 62 per cent (table I). These

TABLE I
OPERATIONS FOR ACUTE MECHANICAL OBSTRUCTION AT THE CHARITY HOSPITAL AT NEW ORLEANS*
1936-1940

	Strangulated			Non-strangulated			
	No. cases	Deaths	Mort. rate per cent	No. cases	Deaths	Mort. rate per cent	Percentage of strangulations
Adhesions	45	24	53	98	15	15	31
Hernia	35	20	57	14	2	14	71
Intussusception..	10	6	60	21	4	19	32
Volvulus	16	15	94	9	1	11	64
Miscellaneous	2	2	100	5	3	60	28
Total Cases.....	108	67	62	147	25	17	42.4

*Malignancy excluded.

patients, with few exceptions, were operated upon within a few hours after the diagnosis of obstruction was made. The results obtained in this series in simple obstruction are comparable to the results obtained by Johnston and his co-workers^{9, 10} with the use of the Miller-Abbott tube. I also had the distinct advantage of not running the risk of treating strangulated obstruction conservatively. The findings do not substantiate the view of Johnston and his co-workers⁹ that "Since the incidence of true strangulation is low, the increase in total mortality should not be great even if the condition was not recognizable and operation was therefore delayed." In my series, 42.4 per cent of the cases were of the strangulated variety, as evidenced by blockage of the lumen and interference with the blood supply of the involved bowel.

SUMMARY

The following points summarize my opinion concerning the management of acute mechanical intestinal obstruction:

1. Acute mechanical obstruction demands immediate operation.
2. Preoperative decompression contin-

ued over a long period of time by means of nasal tubes is a dangerous procedure.

3. During the hour or two of delay necessary for setting up the operating room and preparing the patient, gastric suction with a Levin tube or a Miller-Abbott tube should be employed, infusions of sodium chloride and glucose should be given, and the patient's blood should be matched for transfusion.

4. The obstruction must be released or removed, but the principle of doing the least possible amount of surgery should be followed. The non-viable bowel must be removed but primary anastomosis should seldom be attempted.

5. Unusual care must be exercised in handling the dilated bowel to avoid tearing with consequent spillage.

6. Enterostomy is contraindicated. Ileostomy in the proximal loop has no advantage over a Miller-Abbott tube in the same place, and jejunostomy has no advantage over gastroduodenal suction drainage. In obstruction of the large bowel due to carcinoma, colostomy or cecostomy should be done to relieve pressure on the cecum. Ileostomy is not indicated as a decompressive measure for obstruction of the large bowel.

7. Postoperative decompression by means of the Miller-Abbott tube is beneficial regardless of what is found and of what procedure is performed. Nasal oxygen should be administered postoperatively, both for its decompressive effect and to combat anoxemia and shock. Sodium chloride and glucose solutions should be given routinely. Transfusions of blood or plasma will save many patients who have strangulated obstruction.

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DISCUSSION

Dr. Rawley M. Penick (New Orleans): Treatment of intestinal obstruction is always complicated but I will readily agree with Dr. Romano that it has become more confused recently by the advocacy of certain conservative measures. This is due to the introduction of the Miller-Abbott tube, which has led a good many to think that decompression will simplify the whole treatment of intestinal obstruction. I also agree that the indiscriminate and unwise use of conservative measures will bring about an increase in mortality. Dr. Romano should be congratulated on his method of attack on this complicated subject; that is, a discussion of fundamental principles on which a rational therapy must be based. There is no other type of case which, if treated by rigid routine, will yield such poor results because there is no one treatment for intestinal obstruction.

The question, in this connection, being discussed most generally today is that of differentiating between simple obstruction and obstruction with strangulation. A good many surgeons feel that they can distinguish between the two types with such accuracy that treatment can be safely selected on this basis. There is little doubt in my mind that without more exact clinical methods of differentiation, this policy will increase the danger for many patients. There are, of course, many instances where a definite diagnosis of strangulation can be made or ruled out, but frequently this is not possible. When strangulation is present, the whole problem is one of operating as soon as possible—as soon as operation can be safely performed.

In regard to clinical management, I feel we should classify the cases into two large groups on the basis of distention; one in which there is little distention and the other in which distention is great. Obviously, the patients who have little distention will have early, high, or incomplete obstruction; in either instance, early operation is indicated, for experience has proved that the mor-

talidity, in such obstruction, is as low with operation as with conservative measures. Hence, when distention is not marked, there is nothing to be gained by conservative measures and much may be lost.

The second group, characterized by marked distention, gives more trouble. For convenience, I divide these into two sub-groups, that is: those in which the diagnosis of strangulation can be made and those in which this is doubtful. If strangulation is present, everyone agrees that early operation is imperative but in the larger group, where this cannot be accurately determined, I believe it is often wise to resort to decompression for a short period at least. This is not a retreat from the necessity for early operation but is a continuation of the principle that surgical intervention should be carried out at the earliest time which is safe for the patient. I have been impressed many times with the difficulties in operating on greatly distended gut and therefore, if this factor can be minimized with some degree of safety, it will usually prove a wise preoperative procedure.

I have said nothing about the general condition of the patient but this too often necessitates some delay in order to replace fluids and electrolytes. Such measures are most important but are not really a part of the problem under discussion.

Dr. P. D. Abramson (Shreveport): There can be no essential difference of opinion with the views expressed by Dr. Romano in his excellent paper.

I think his point has been well taken. There has been so much enthusiasm and so many enthusiastic reports regarding the Miller-Abbott intestinal intubation in intestinal obstruction that the procedure has been badly abused and used in patients who were fit subjects for surgery. There can be little argument with the opinion that a patient with complete mechanical obstruction should be operated upon early. It is hard to differentiate at times between complete and partial obstruction. Many cases of partial obstruction have been spared operation by decompressive therapy. We believe that in early cases there is as much value from Wangenstein's gastroduodenal drainage as from the Miller-Abbott tube. As pointed out, a great deal of the distention is due to swallowed air and secretions from the liver and upper intestinal tract. If this material is removed before it has gotten farther on down in the intestinal tract a great deal of distention is avoided. Once it occurs one must resort to the Miller-Abbott intubation. We do not look with quite so much disfavor on enterostomy.

If laparotomy has been deemed advisable in an organically obstructed bowel, and particularly if there is much gut distention, enterostomy may be quite valuable. Certainly the distended bowel can be much more rapidly decompressed by the procedure than by relying upon the slower method of

intubation; and the essayist has emphasized the ill effects of prolonged bowel distention.

I would like to emphasize what has been said about the maintaining of fluid, electrolyte and protein balance in these cases, particularly if there is gastroduodenal suction and they are likely to be depleted. We find clinically if the patient is secreting one thousand c.c. of urine in twenty-four hours, we may feel certain that patient is receiving ample fluid. Of course there are limitations to this simple rule. If he is secreting three grams of urinary chlorides we feel that the blood chloride level is satisfactory. Lately we have been relying upon the falling drop method of determining plasma specific gravity. This permits of more accurate fluid control; and at the same time plasma proteins can be determined and hypoproteinemia circumvented by the early use of plasma or blood transfusions.

Dr. S. M. Copland (New Orleans): The Utopian idea is immediately to segregate cases of intestinal obstruction as to mechanical or paralytic types. This is not always possible to do immediately. If there is reasonable doubt, then surgery is indicated if one is to be safe. Mechanical obstruction as well as paralytic obstruction is a surgical disease and the advent of the Miller-Abbott tube and Wangenstein suction has definitely not made intestinal obstruction a medical disease.

I think Dr. Romano covered the field very well; however, it might be worthwhile to point out that there is a considerable loss of protein with distention. This deficiency should be corrected. In my experience, I have found out when using the Miller-Abbott tube, at times there is a paralytic ileus distention above the point of the tip of the Miller-Abbott tube. When the Miller-Abbott tube is passed low in the small intestine, the stomach above may become dilated, and to combat this situation we have also employed the simultaneous use of the Wangenstein suction apparatus in conjunction with the Miller-Abbott tube.

The question of fluid balance is of extreme importance and it has been found, in judging the amount of fluid to give, that it is well to have nurses check the exact amount of material obtained through the Miller-Abbott tube and also the intake of fluid and to have suction material analyzed for sodium chloride. In this way the patient may be kept in a state of fluid balance. Since all fluid is given by hypodermic injection over a long period of time, it is essential to have this information.

There is the question of adrenal gland damage in obstruction; the administration of adrenal extract may be of value.

Dr. S. A. Romano (In closing): I shall present briefly a case history, typical of many found in this review, that illustrates the difficulty in differentiating simple from strangulated obstruction.

A fifteen year old colored boy was admitted one and a half years after an appendectomy with a chief complaint of intermittent, colicky abdominal

pain of 36 hours' duration. Vomiting had been present at the beginning of the attack and recurred 30 hours later.

Examination revealed the following: Temperature 99.4° F., pulse rate 70; and respiratory rate 24. The blood pressure was 110/75. The abdomen was distended but palpation revealed no tenderness, rigidity or rebound tenderness. On auscultation there was noted an increase in peristaltic sounds.

A laparotomy was performed within an hour and a half after admission. The findings at operation were: Free straw-colored fluid; adhesions obstructing the ileum; and strangulation of a segment of ileum. After release of the adhesions and application of hot packs, the color of the bowel became normal except for a small area where adhesions had compressed the bowel. This area was inverted with a few Lembert sutures. Peristaltic waves traversed the involved segment of ileum and normal pulsations were felt in the mesenteric vessels.

The patient made an uneventful recovery.

According to the criteria of those who advocate the use of the Miller-Abbott tube this patient should have had preoperative decompression of the ileum with a Miller-Abbott tube because the absence of signs of peritoneal irritation and the lack of constant pain pointed to a simple obstruction. However, as was shown at operation, strangulation was present at the time of admission and delay of operation for 12 to 48 hours to allow a Miller-Abbott tube to decompress the ileum would have been fatal.

BLADDER INSUFFLATION AS AN AID IN THE LOCALIZATION OF VESICOVAGINAL FISTULA

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Vesicovaginal fistulae with their cardinal signs and symptoms of urinary incontinence, ammoniacal odor and genital irritation are easily diagnosed when the opening is discernible on inspection. There are, however, certain fistulae which, on account of their position or size, cannot be so easily located. This latter type of lesion can, in most instances, be seen by injecting a dye or milk into the bladder and watching for its appearance in the vagina. In one patient even this procedure failed to visualize the fistula when one was known to be present. The thought occurred to me that perhaps air insufflated into the bladder would be an aid.

The patient was placed in the lithotomy position and the posterior vaginal wall was gently retracted. A number eighteen (18) French catheter was placed in the urethra and a double bulb cauter set was attached to the catheter to inflate the bladder. An ounce of water was then placed in the vagina and air was seen to bubble through the water when the bladder was inflated just as one would locate a puncture in an inner tube. This method seemed to be so much cleaner and surer than the dye injection that it was adopted as routine in these cases.

At cystoscopy some fistulae are elusive because of mucosal folds surrounding them, but with air localization, a ureteral catheter can be passed from the vaginal side of the bladder and then easily seen by the urethroscope or cystoscope.

Bladder insufflation with air is further utilized at the time of fistula operation. When the fistula has been mobilized and closed by suture, the bladder is insufflated and if there is any leak through the fistula or if another fistula is present it

can readily be discerned. When a dye is used to test the closure, all the tissues are stained; if repair is inadequate and a re-test with the dye is done, it might be misleading on account of the stained tissues.

When difficulty is anticipated in a pelvic operation where the normal anatomy is distorted, bladder insufflation of air is a distinct aid in delineating the bladder to protect it from injury. In addition, if injury has occurred, it can be located by this method and repaired.

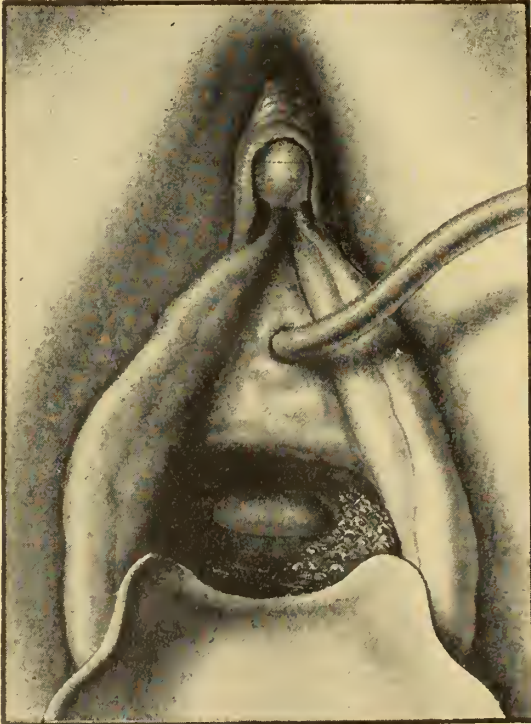
ESTROGENIC HORMONE THERAPY IN PROSTATIC HYPERTROPHY*

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In any consideration of the non-surgical treatment of the enlarged prostate it must first be understood that there exist four pathologic types of prostatic obstruction; namely, acute prostatitis, carcinoma, fibrotic contracture of the vesicle neck, and prostatic hyperplasia. It is the last named of the four, only, which has engaged the attention of the medical profession for the past fifty years in efforts to determine its etiology and thereby indicate proper preventive or restorative non-surgical treatment.

The belief that prostatic hypertrophy is due to some endocrine disturbance has existed for a long time. White, in 1893, was first to recommend that castration be tried as a cure for hypertrophy. However, after some popular enthusiasm in this direction, the procedure passed into oblivion about 1900. The various Steinach procedures were also based on endocrine theories, but failed to retain any degree of favor.

The isolation of the male sex hormone, called androsteron, by Butenandt in 1931, then stimulated an increased interest in hormone therapy and a number of theories



Air seen bubbling through water in the vagina.

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to explain prostatic hypertrophy have lately appeared. However, it has been definitely proved clinically that the male sex hormone, when administered to the human, does not cause any regression in the size of the prostate. In fact it actually increases its size in the dog, as shown by Huggins.⁶

On the other hand, it is now accepted generally that the male organism elaborates both male hormone and estrogenic hormone. The two are thought to exist in balance in the normal individual, but in later life the balance becomes altered and one hormone may be in excess. Wugmeister,² in 1937, advanced the theory that the female hormone is deficient in later life, whereupon the anterior pituitary, no longer inhibited by estrin, begins an overproduction of its gonadotropic hormones which stimulate an overgrowth of the genital glandular apparatus, including the prostate. He treated 23 men with prostatic hypertrophy with estrin, claiming clinical improvement in 16 of these patients.

Very recently Kahle and Maltry⁴ have published their results in the treatment of 14 patients who had prostatic hypertrophy with the estrogenic hormone. They state that one half of the patients were symptomatically improved, and that virtually all of them showed a decrease in the size of the prostate as checked by digital and cystoscopic examinations. They also are of the opinion that the moderately enlarged prostate is probably more responsive to the influence of this hormone than the excessive enlargements.

This more recent work has been done with the synthetic estrogenic substance, diethylstilbestrol, which was synthesized in 1937 by Dodds and his coworkers,¹ and found to be of much greater potency than estrogen. Nobel⁵ found that diethylstilbestrol has an inhibitory effect on the anterior pituitary gland similar to that of estrone, and duplicates exactly the action of estrone. The drug has been found to be well tolerated by the human in large doses and has a wide margin of safety. Its toxic effects are apparently of no particular significance,

nausea being the chief offending symptom in a few cases.¹¹

RESULTS OF TREATMENT WITH DIETHYLSTILBESTROL

I have used this drug on seventeen patients to date, on the Tulane Service of the New Orleans Charity Hospital, and in the University Clinic. All men were white, ranging in age from 49 to 86 years, with an average of 63. Fourteen patients received stilbestrol dipropionate by intramuscular injection and three by mouth. In those cases receiving the drug orally, the effective dosage was considered to be half the administered dosage. All cases were benign hyperplasias and were non-infected except in one instance. Two patients complained of some nausea during treatment, and one had enlarged, painful breasts. There were no other reactions.

ANALYSIS OF TREATMENT AND RESULTS

	Total time of treatment	No. of cases	Results	
			Improved	Un- improved
Total dosage				
400,000 units	3 weeks	6	4	2
600,000 units	4 weeks	3	3	0
800,000 units	4 weeks	2	2	0
	6 weeks	5	2	3
1,600,000 units	6 months	1	1	0
Totals		17	70%	30%

It may be seen from the above analysis that twelve patients, or 70 per cent, of those treated showed clinical improvement. Five of the patients thus improved received hormone therapy to the exclusion of all other forms of conservative treatment. Their improvement was checked and rechecked in terms of the amounts of residual urine before and after treatment, as well as by symptomatic improvement. In each instance the prostate appeared to be smaller on digital examination after treatment. They, therefore, apparently represent cases definitely influenced favorably by hormone therapy.

The remaining seven men showing improvement under therapy were in complete retention when first seen, and were catheterized and the catheter left in for a variable time, up to six weeks. The results obtained in these instances therefore are colored by the possibility that some of them might have obtained some improvement merely

from the instrumentation and bed rest. In fact two patients with carcinoma not included in this series were greatly improved by this program of treatment, although there is no reason to believe that the hormone has any beneficial effect on carcinomatous obstructions.

It is well known that physiologic rest for the bladder neck, with or without hot sitz baths and prostatic massage, will frequently relieve the congestive and edematous factors in a given case of prostatic obstruction, thereby affording the patient clinical relief and reducing the palpable size of the prostate. Clarke,³ in a review of 93 cases of prostatic obstruction of all types and sizes, treated entirely by conservative means, found that 62 cases, or 68 per cent, were afforded definite clinical relief of symptoms for a period of time averaging three years. Furthermore it was at one time recommended that patients receiving hormone therapy be massaged at regular intervals to facilitate the emptying out of the prostate of any cast off epithelium resulting from the hormone influence. Here again however, the picture may be confused and the physician would be unable truly to evaluate the effects of the therapy, except in those instances where previous massage had failed to bring about clinical improvement. These facts are cited, not to attempt to discredit hormone therapy, but merely to warn of possible errors in the evaluation of the results obtained.

Five of the patients studied showed no improvement. These men were also afforded bed rest and catheterization, and yet failed to respond. These were, without exception, very large prostates and it raises the question as to whether the very large prostate is amenable to such treatment at all. Should such prove to be the case, then obviously this treatment should be reserved for early and comparatively small hyperplasias.

In three patients biopsy specimens were obtained before and after treatment was administered, and in no instance was any demonstrable change noted in the histology of the sections, although in one man the

prostate was grossly reduced from a tremendous size down to 37 grams on removal, after treatment. Huggins,⁶ however, says that in the dog the size of the gland is decreased by estrogenic injections, and that when estrogen and androgen together are given to the dog there occurs squamous metaplasia in the posterior lobe of the prostate, while the epithelium of the acini decreases in height to cuboidal or low columnar form. Kahle⁴ also reports at least one case in which definite histologic changes in the prostate of the human were noted after treatment.

ADMINISTRATION OF DRUG

With regard to dosage and the time interval during which the drug should be administered, it is at present thought that 800,000 units of diethylstilbestrol dipropionate should be given over a period of four to six weeks before its maximum effect can be expected. It will be noted that many patients in this series received less than the optimum amount of the drug and were treated for a shorter period of time than now considered necessary, and yet many of the improved patients were those receiving the least amount of the hormone over the shortest period of time. It is not yet known what the optimum daily or weekly dosage should be nor how long it should be continued, although von Haam, Mayer and others¹¹ have done much good work along these lines in women. They show that 10 to 30 per cent of the ingested amount of the hormone is excreted within the first 10 days after its administration.

Huggins⁶ has found, in work on dogs, that excessive doses of estrogenic hormone tend actually to cause an increase in prostatic hypertrophy rather than regression.

At Tulane we have injected one lobe of the prostates of seven dogs directly with five milligrams of diethylstilbestrol dipropionate. These prostates were removed at intervals from one to four weeks, and no gross or histologic changes were seen in any instance, using the uninjected lobes for controls.

SUMMARY AND CONCLUSIONS

If such therapy can be substituted for operation, the benefit is obvious. Men of the prostatic age are never ideal surgical risks. They are often prepared to accept any form of treatment, proved or unproved, rather than submit to operation. Therefore, because of the possible consequences of failure, it is essential to be accurate in evaluating the evidence obtained in experimental work of this kind. In the absence of any trustworthy means of measuring actual changes in size of the prostate, the results here have been interpreted in terms of the fundamental clinical evidence of residual urine and ability to void. There were five instances in this series where the clinical improvement as measured above, was striking, if not dramatic, and these patients received no additional forms of treatment. It is this group, more than any other, which offers the best evidence of the value of this therapy.

However, there is much that must yet be done before the true value of the hormone can be evaluated. Among the problems included here are:

1. A determination of the sizes and types of prostatic pathology amenable to such therapy.
2. A determination of the dosage and time interval in administering the hormone, necessary to obtain maximum results.
3. An accurate method of measuring the size of the prostate before and after treatment.
4. A determination of the maintenance dose necessary to serve as prophylaxis against future growth of the prostate.

Thanks are due the Medical Research Department of the Winthrop Chemical Company, represented by Mr. Kenneth Smoot, for cooperation in supplying the diethylstilbestrol dipropionate used in this work.

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DISCUSSION

Dr. Edwin H. Lawson (New Orleans): This discussion will be limited to the histopathology of the prostate of patients who have received stilbestrol. In the normal adult prostate gland, the prostatic epithelium closes the irregular walls of the secreting units of the organ which are dispersed through the wrapped up closely contractile fibro-muscular stroma of the gland. According to most authorities the lining epithelium is more than one cell deep and the surface cells are usually of the highest cylindrical type, and, according to some authorities, the cells during the period of secretion enlarge and show an accumulation of granules at the free borders. Following the period of secretion the cells may be quite flat with a mere rim of protoplasm around about the nucleus. The changes which have been found, according to some investigators, due to the effect of stilbestrol upon the prostate, consist of flattening of the epithelium with desquamation into the lumen of the acini. Meanwhile, the stroma shows an increased amount of connective tissue producing a fibrosis. Through the kindness of Dr. Kittredge it was my pleasure to examine prostatic sections from ten men who had received stilbestrol. With the changes described as due to stilbestrol in mind, the size and shape of the epithelial cells was studied, the location of the nucleus within the cell, and changes in the stroma as regards fibrosis and edema were considered. After summing up the changes it was thought that two of the ten slides exhibited characteristics due to stilbestrol, two of the slides did not show a conclusive change but were suggestive. After speaking with Dr. Kittredge it was found that of the four slides two patients had

received stilbestrol and two had not. This same result had been obtained by other individuals studying the same ten slides. It has been my experience in studying sections from prostates that such changes as supposed to be due to stilbestrol have been found long before stilbestrol was discovered. To draw a conclusion from such limited experience is, of course, hazardous, but to say that the above mentioned histologic changes are the characteristic effects of stilbestrol is questionable.

Dr. Max M. Green (New Orleans): I think Dr. Kittredge's paper is very timely. Diethylstilbestrol offers something definite to give older men; both those who will later come to operation and some few who might not be able to stand operation. We are very much encouraged by the results which we have been getting on the L. S. U. service at Charity Hospital.

Since Dr. Kahle reported on a series of cases, we have treated some 17 more patients to whom stilbestrol has been given. Ten of these patients were given rather large doses of stilbestrol, shortly before operation, with the object of noting whatever microscopic changes were to be seen. In seven of these men stilbestrol was given over varying days, up to four weeks, being given 10 to 60 milligrams. The dosage on our service is higher than that given in private practice in other hands. As much as five milligrams were given at one time with the idea of trying to produce definite effect on the prostate; for those on whom we might do biopsies.

Regarding the clinical improvement seen in these patients of the 17 cases I cite, there was definite reduction of residual urine. Similarly by process of estimation, rectal examination, the size of the prostate was reduced in some glands measuring ten by ten centimeters, down to possibly three by three centimeters. I think, by that, we can not overlook results shown in these particular cases on our service.

The dosage of stilbestrol, of course, is still very much indefinite. It would be suggested, however, that if it would be given, give it on successive days, say for possibly five days, giving a milligram a day in order to get effect on the pituitary which we think is the intermediate agent; then decreasing to twice weekly until maximum effect is seen and then give a milligram every two weeks to continue the effect which you have produced on this gland. We know this is replacement therapy and when the treatment is stopped there is recurrence of symptoms.

I wonder if catheter drainage actually clouds the picture. Certainly it reduces edema but does not reduce hypertrophy of the prostate or residual urine. We feel that this drug works best on the small glands and in small hypertrophy.

Dr. P. J. Kahle (New Orleans): At the time of our preliminary report, we presented a study of fourteen patients, five with small glands and nine with large ones. The nine patients with large

glands were given the stilbestrol principally for the study of tissue changes which might occur as a result of the medication. The conclusions that we came to at that time were that there were definite changes in the prostatic tissue following administration of stilbestrol. The small glands definitely regressed; the same was true with the moderately large. In the instances of the large prostates there were an appreciable number of glands returning to normal; two of those measured approximately ten by ten at rectum after administration of stilbestrol. Both of these patients had preliminary drainage, as treatment is not carried out until bladders are drained for a month or so and there is no appreciable change noted in the prostate. Measurements of prostate are made at the time of treatment. Stilbestrol is given after prolonged drainage. In two of the cases mentioned the prostate was removed and these large glands weighed, at the time of removal, 17 grams. Those patients were operated on by Dr. Vickery who felt the glands were normal in size.

We do not feel that the large glands will resolve entirely; probably due to the amount of stroma present, or possibly action on the glandular elements.

Although the number of cases is small, we must remember the fact that there are changes in the prostate definitely due to stilbestrol. Some prostates have been found, when the prostate has not received treatment, with similar changes. We are not quite so sure whether there is actual effect on the prostatic glandular element of the epithelium. This is barely possible as we know that prostates will not continue to grow at a regular rate, they will even regress; it is possible that in individuals not treated that there is a difference in the estrogen balance. Some of these glands may show changes, although the patient has not received treatment. To clear this point we are now proposing to take some patients, resect at least half of the glands, give treatment with stilbestrol and then study the histology after administration of treatment—24, 48 and 72 hours. I might mention that since the preliminary report was made, ten men with small glands were selected in private practice, with 100 per cent improvement in residual and in size. I believe we have had at least two out of seven discharging glands normal at rectum and residual urine reduced in amount. Those cases were referred to the clinic. In other men, with drainage and so on, it was impossible to tell the benefit of the treatment. I do not believe other cases were as completely regressed. Whether or not the glands will further regress with prolonged treatment, we are not in a position to tell. There is still stroma which remains and as far as we know it has not been affected by the stilbestrol.

Dr. Eugene B. Vickery (New Orleans): My experience with the use of stilbestrol is not enough to make it possible for me to have formed any

definite opinion about it. Dr. Kahle has said that I was instrumental in removing two of these glands which weighed only seventeen grams. They were removed *in toto*, shelled out without difficulty and for that reason we felt they were not of the inflammatory type. Those patients came to the hospital with a large amount of residual urine and for that reason it seemed to me there was some favorable influence on the prostate by the stilbestrol. Certainly it is a fact that we can hardly yet form definite opinion in this regard. The preparation will have to go through the hands of a good many men and a good many patients will have to be treated before we can form a definite opinion about it. However, I certainly wish to say that I have seen some evidence of improvement by the use of stilbestrol.

Dr. M. H. Foster (Alexandria): It has been over six years ago on a visit to the Pacific Coast that I heard a physician at Alcatraz, when giving estrogenic mush, report not only considerable clinical improvement but dysuria relieved, frequency lessened and complete sense of well being restored. These men even discarded their glasses. Despite all that has been published, I have never been satisfied that I have produced improvement by the administration of estrogenic hormones. I think we will still have to wait for more evidence before coming to definite conclusions concerning hormone therapy in prostatic hypertrophy.

Dr. W. E. Kittredge (in closing): I can testify that testicular mush, as mentioned by Dr. Foster, does improve vision. It also improves skin texture of elderly men. I have personally seen it. It did more for acne in young girls in two cases than anything else tried. It does not reduce the size of the prostate or in any way fundamentally affect that.

As for our work with estrogen, I would like to remind you that this is still in the research and experimental stage. There is much that we do not know about it. There is a great deal which happens to confuse the results we see. I am willing to say as of today that the drug certainly has promise, because there are indisputable cases which are considerably improved after its use. As I said before, there is a great deal we have yet to know and understand before becoming dogmatic. We must know the histopathologic changes, on what gland to use it, how much to give, how long to continue treatment, and the proper maintenance dose. Last but far from least, we must know how accurately to determine the size of the prostates treated. There have been suggested several more or less ingenious methods of measuring the prostate while in the patient, by instrumental means. One of these may prove to be reliable. We certainly do need some such procedure actually to check the size of the gland before and after treatment.

USE OF SULFAGUANIDINE IN A CONTROLLED SERIES OF TYPHOID CASES

WILLIAM M. HALL, M. D.
SHREVEPORT

Due to recent reports of the effect of sulfaguanidine on typhoid and typhoid carriers, this drug was used in 20 patients with proved typhoid at the Shreveport Charity Hospital in June, July, and August of 1941. A similar number of proved cases in the hospital at the same time (in several instances in the same family) receiving no sulfaguanidine were taken as controls. The patients who received sulfaguanidine were not selected but were run of the mill admissions. The only cases included in both groups were those having positive stool cultures and showing agglutination in a high titer of both the O and H antigens. The drug was used in the recommended dosage of 0.10 gm. per kilo the first dose and 0.05 gm. per kilo every four hours thereafter. It was stopped in all cases as recommended after 12 to 14 days and in six instances was resumed after a lapse of one week. Blood levels of sulfaguanidine averaged from 1 to 2 mg. per cent as compared with the recommended level of from 1 to 5 mg. per cent. Supportive treatments, including transfusions, were given all patients as needed, regardless of sulfaguanidine therapy.

The period of illness before hospitalization for both series averaged 14 days, the extreme being two days and 28 days. The average total duration of illness was 61 days for those persons receiving sulfaguanidine, and 48 days for the controls; three negative stools on successive days were obtained before the illness was considered terminated. Two of the patients receiving sulfaguanidine were discharged as intractable carriers. The average length of time from onset until the patient was afebrile was 53 days for those receiving sulfaguanidine, and 42 days for the control group. The patients receiving sulfaguanidine averaged a 48 day hospital stay and the controls a 36 day hospital stay.

The pulse rate was elevated in proportion to the degree of fever and in no instance

was it recorded as being slow, as described in some texts. Sulfaguanidine had no effect on the pulse rate.

There was a very definite leukopenia exhibited in all the cases of both series. There was no adverse effect from the sulfaguanidine on the blood picture of any person who received it.

There was no striking reduction in the temperature of any of the patients while on sulfaguanidine. In 14 of the cases there was no drop at all and in the other six the fall was gradual and in no way distinguishable from a similar fall in the controlled group of the same duration of illness.

The positive stools were reversed in only two patients during the period of sulfaguanidine administration. Of the other 18 patients, 16 became negative later, one after multiple gallbladder drainages, and two were dismissed as carriers.

There was no pronounced salubrious effect attributable to the administration of sulfaguanidine, those few patients who were symptomatically improved were paralleled by similar improvement in controls of the same stage of illness.

Complications were numerous in both series. Intestinal hemorrhage occurred five times in three patients of the sulfaguanidine group and one time in the control series. Severe recrudescences occurred five times in four of the sulfaguanidine group and four times in four patients of the control group. Myocarditis occurred in one person in each series. An abortion occurred in one woman in each series. Bronchopneumonia and a decubitus ulcer complicated one case in the sulfaguanidine group. There were no instances of perforation. There were two patients dismissed as carriers, one was seven months' pregnant, and both were in the sulfaguanidine series. There were several instances of rather profound anemia due to intestinal hemorrhage and requiring repeated blood transfusions. Eight transfusions were given to five patients in the sulfaguanidine group and sixteen transfusions were given to six patients in the control group. The favorable results obtained

with transfusions in these very ill patients in both series was most gratifying.

SUMMARY

The use of the drug did not decrease the duration nor the degree of morbidity, produced no fall in temperature, gave no marked symptomatic improvement, and did not cause a reversal of positive stool cultures. The incidence of complications was unaffected. Sulfaguanidine as judged by this controlled series was without value in the treatment of typhoid.

THE DIAGNOSIS AND TREATMENT OF GASTRIC SYPHILIS*

WITH A CASE REPORT

GRACE. A. GOLDSMITH, M. D.†
NEW ORLEANS

Syphilis of the stomach is relatively rare but it merits more consideration in the differential diagnosis of gastric lesions than it has received in the past. The criteria necessary for establishing the diagnosis of gastric lues have varied according to the point of view of the investigator, with insistence by some on histopathologic or bacteriologic confirmation, while others have considered that a clinical diagnosis can be made without laparotomy. The improved methods of diagnosis in recent years have facilitated recognition by the clinician and in a number of instances gastric syphilis has been proved beyond reasonable doubt without microscopic examination of tissue.

INCIDENCE

Considerable controversy exists regarding the incidence of syphilis of the stomach. While many patients with syphilis have gastric complaints, only a small percentage of these have true luetic lesions in the stomach. Roen and Thorner¹ stated that gastric symptoms may be due to the general systemic infection, may be referred from other involved organs such as the liver, or may be manifestations of central

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nervous system syphilis. Stokes² reported that of 200 patients with late or latent syphilis who had gastric symptoms, 75 per cent had neurosyphilis, 10 per cent organic lesions of the gastrointestinal tract and 5 per cent had true syphilis of the stomach. In a series of 10,000 syphilitic patients, he found 60 cases of gastric lues. Smithies³ recorded the incidence as one case of syphilis of the stomach in every 330 gastric cases. The frequency according to O'Leary⁴ was less than 0.3 per cent in leptic patients seen at the Mayo Clinic. Syphilitic lesions of the stomach are even more rarely encountered at postmortem examination. Merrill⁵ found 10 cases in 18,000 gastric examinations at the Massachusetts General Hospital; Fitts⁶ no cases in 500 autopsies on negroes in the South, and Turnbull⁷ only one doubtful case in 13,000 examinations in London. Meyer and Singer⁸ stated that the incidence at autopsy underestimates the real incidence. They found four cases at operation during a period in which no gastric syphilis was found in 5,000 autopsies, in 10 per cent of which there was evidence of syphilis. The conclusion is that gastric lues tends to heal and in doing so, loses its specific characteristics.

PATHOLOGY

O'Leary⁹ has divided gastric syphilis into several types: (1) The single gumma; (2) multiple gummata in the form of the nodular ulcerative syphilid; (3) diffuse nodular infiltration; (4) chronic fibrosis, or cirrhotic stomach. As Laird¹⁰ has stated, the disease begins as a gumma in the submucosa and extends into the other coats. Through the breaking down of the gumma, ulcers and later scars may form. Meyer and Singer¹¹ have described in detail the characteristic macroscopic pathology which is of great value in diagnosis, especially to the surgeon at the time of operation. There is a thickening of the stomach wall most often in the prepyloric region, less commonly in the media and seldom in the cardia. There is first a localized plaque-like infiltration in the submucosa which, as it extends, leads to ulceration. Finally, there is contraction of the involved segment into

consecutive cylindric narrowings. A diffuse leather bottle stomach is rarely found. The consistency is soft in comparison to carcinoma and more fibrous than neoplastic. The thickening is uniform but fades imperceptibly. Cross section of the wall shows the coats distinctly, revealing a thick edematous submucosa without extension into the other coats. Multiple serpiginous shallow ulcers with raised edges may be seen. Microscopically, there is diffuse infiltration of the entire wall, but especially of the submucosa, with lymphocytes and plasma cells. The infiltration shows a conspicuous perivascular arrangement. At times gummatous nodules composed of epithelioid cells are seen, with occasional multinucleated giant cells. A proliferative endarteritis is commonly found. Williams and Kimmelstiel¹² described a pan-phlebitis, first noted by Fraenkel, which can be detected only by special stains for elastic fibers. They consider this periendophlebitis more indicative of syphilis than are other microscopic findings.

It is agreed by many authors, Roen and Thorner,¹ Harris and Morgan,¹³ Downes and Lewald,¹⁴ and others, that biopsy can not be depended upon for a positive diagnosis, but that it is extremely valuable in eliminating carcinoma and in supplementing clinical findings.

For many years there has been controversy regarding the necessity of finding the *Treponema pallidum* in gastric tissue in order to make an absolute diagnosis of syphilis. Very few investigators, in spite of diligent search, have been able to demonstrate spirochetes in lesions of the stomach. McNee⁵ reported spirochetes in Levaditi stained sections from a gummatous stomach. Harris and Morgan¹³ inoculated the testicles of rabbits with an emulsion of gastric tissue from a patient with syphilis of the stomach and produced lesions in the rabbits which were typical of lues. From these lesions they recovered spirochetes. However, Singer and Dyas¹⁶ and others have shown that spirochetes from the mouth may be secondary invaders

of the stomach and that the differentiation of syphilitic and saprophytic spirochetes is exceedingly difficult. Singer¹⁷ has also stated that spontaneous spirochetal disease occurs in rabbits due to *Spirochaeta cuniculi*, which organism is practically indistinguishable from *Spirochaeta pallida*. It may be concluded that the demonstration of spirochetes in a gastric lesion does not prove that the condition is syphilitic.

CLINICAL FINDINGS

The clinical manifestations of syphilis of the stomach are protean and dependent on the extent of the pathology, but most often they resemble those of peptic ulcer or carcinoma. Eustermann,¹⁸ who has reported 93 cases, believes that with careful study a correct clinical diagnosis can be made in most instances without microscopic examination of tissue. While gastric lues can occur in any age group, it is most frequently seen in the third and fourth decades. In Eustermann's series, the average age was 36, as compared to an age of 45 for peptic ulcer and 54 for carcinoma. The symptoms which occur most frequently are abdominal pain, vomiting, and loss of weight and strength. Nausea and anorexia are less frequent, although a capricious appetite is not uncommon. The abdominal pain is usually located in the epigastrium and may be constant. It is often initiated or aggravated by the intake of food and may be more severe after the ingestion of solids than of liquids. It is unrelieved by alkalis. There is evidence of low gastric capacity as small meals may be tolerated, whereas large ones cause acute distress. Vomiting will usually relieve the discomfort to some extent. There is rarely any evidence of gastric retention. A few patients show an ulcer syndrome of pain — food — ease but the sequence is not as regular as in duodenal ulcer and a regimen of diet and alkalis will not cause a remission. While weight loss may be severe, it is less rapid than in carcinoma, and extreme cachexia is rare. Hematemesis and melena occur less often than in either ulcer or carcinoma. The duration of symptoms varies from several months to many years with an average, ac-

cording to Eustermann, of two years. The course is progressively downhill. In spite of the severity of symptoms and the marked weight loss, an abdominal mass is infrequent in contradistinction to carcinoma of similar duration. Anemia may occur but it develops less rapidly than in carcinoma, and is seldom as severe. Gastric analysis shows in most instances an achlorhydria or a hypoauidity, even after histamine stimulation. The Wassermann reaction is positive in a very high per cent of genuine cases and other evidence of lues may be present. Stokes² found a positive Wassermann in 37 of 40 cases and in 25 of the 40 there was other evidence of syphilis. The spinal fluid Wassermann is occasionally positive when that of the blood is negative.

The findings on x-ray examination which are suggestive of gastric syphilis have been summarized by Carman,¹⁹ Moore and Aurelius,²⁰ McPeak,²¹ and many others. The location is prepyloric in 70 per cent, median or hour-glass in 22 per cent and diffuse in 8 per cent, according to Moore and Aurelius.²⁰ In the median or hour-glass type, there is a smooth annular constriction or an extensive defect giving a dumb-bell shape. In the prepyloric type the defect is almost always concentric and symmetrical with marked contraction and progressive narrowing of the lumen toward the pylorus. When there is diffuse involvement the entire stomach is contracted, leaving only a narrow smooth canal. The pylorus is gaping, causing the duodenal cap to appear larger than normal. If an ulcer is present, the niche rarely penetrates beyond the normal limit of the gastric lumen.

The features which most radiologists recognize as important in the diagnosis of gastric syphilis are a diminution of gastric capacity, a rapid emptying time, rarely any evidence of retention, the pylorus free rather than obstructed, hour-glass stomach, stiffening of the gastric wall, absence of peristalsis in the involved area, absence of a niche, accessory pocket, or typical incisura, the classical signs of gastric ulcer, a gross filling defect without a corresponding palpable mass, and a patient under the

cancer age who is not ill in proportion to the involvement seen on x-ray examination. The last two findings are considered the most important.

Gastrosopic examinations have been performed in a few patients with syphilitic lesions of the stomach. Carey and Ylvisaker²² reviewed the literature on this phase of the subject and reported their own findings. The mucosa is usually atrophic, although hypertrophic changes have been described. The stomach is contracted with thickened stiff walls. Normal rugae are effaced and there is obliteration of anatomic landmarks. The lumen is difficult to distend by inflation. The mucosa is smooth and pale, although superficial ulceration and hemorrhagic areas have been described. Peristalsis may be absent in the involved areas.

TREATMENT

One of the most important methods which may be used in the diagnosis of syphilis of the stomach is the therapeutic test. If the history, clinical and laboratory findings are suggestive of gastric lues, the patient is given specific therapy in the form of arsenic and either bismuth or mercury, together with large doses of iodides. The response is remarkable if the lesion is syphilitic. The appetite improves. Pain and vomiting cease and there is a rapid gain in weight. There is a difference of opinion among authorities in regard to the time during which the test is to be applied. Stokes² feels that following two injections of 0.3 gram of arsphenamine, three days apart, there should be some improvement. Eustermann¹⁸ and O'Leary² advocate six weeks of antiluetic therapy. During the trial period no other treatment is given except for small frequent feedings. The patient is ambulatory if possible. In addition to a rapid disappearance of symptoms and a gain in weight and strength, there may be improvement in the radiologic findings in one-half of the cases. Later in the course of therapy, the roentgenologic signs may become more marked due to extensive fibrosis occurring with healing. Some patients who have advanced lesions may be-

come free of symptoms but will show no change on x-ray examination.

In the treatment of patients with gastric syphilis, Moore²³ recommends a therapeutic period of 15 to 24 months, and O'Leary²⁴ states that patients should be followed for a minimum of two years. Arsphenamine may be given safely without preliminary preparation with bismuth or mercury. Eustermann¹⁸ sums up the results in his 93 cases as follows: 36.8 per cent clinically cured, 42.5 per cent much improved, 10 per cent unimproved and 11 per cent slightly benefited. When obstructive symptoms are present, operation may be indicated but even in extensive lesions medical therapy may produce astounding results. When there is marked deformity of the stomach a resection may be necessary. Surgical procedures should, however, be as conservative as possible and antiluetic therapy prior to operation shortens the convalescent period according to Stokes.² The danger of prolonging a therapeutic test unduly lies in the fact that the diagnosis may be erroneous and valuable time is lost if the patient has carcinoma. There may be a non-specific response to arsenicals in patients with lesions other than those of syphilis.

The following case of gastric syphilis is reported because of the characteristic clinical and laboratory findings which were present, while at the same time, the location of the lesion was unusual in that there was extensive involvement of the cardiac portion of the stomach. The diagnosis was corroborated by histopathologic study.

CASE REPORT

A white female, aged 39, was admitted to Charity Hospital on November 18, 1940, complaining of epigastric pain and vomiting. Her history dated back four years when she was delivered of a dead baby by cesarean section. Since that time she had noted abdominal pain which appeared 15 to 20 minutes after meals and occurred at irregular intervals. There was a sense of fullness in the epigastrium, accompanied by eructation and vomiting with subsequent relief of distress. Only food recently eaten was found in the vomitus. A year prior to admission to the hospital all symptoms became worse. Food caused discomfort immediately after eating and fear of pain led to a very inadequate diet. At first only solid foods caused

distress while later even liquids produced pain. There had been a weight loss of 27 pounds. After prolonged vomiting, an occasional blood streak was noted but there had been no gross hematemesis and no melena. There was no history of primary or of secondary luetic lesions and the patient had had four normal children prior to the stillbirth in 1936.

Physical examination at the time of admission to the hospital showed an emaciated, somewhat dehydrated, anxious and alert woman who did not appear anemic or cachectic. The temperature was 97.8° F., pulse rate 85 per minute, respiratory rate 20 per minute and blood pressure 95/70. A few small lymph nodes were palpable in the posterior cervical chain. The pupils reacted to light and accommodation. The tongue was slightly atropic and the pharynx reddened and granular. The heart and lungs showed no abnormalities. There were no palpable masses in the abdomen nor could the liver or spleen be felt. Vaginal and rectal examinations were normal except for the presence of hemorrhoids. A complete neurologic survey showed no abnormalities except for hypoaactive patellar reflexes.

Laboratory findings were as follows: Urinalysis, normal. Blood count: Erythrocytes 4,000,000; hemoglobin 70 per cent; leukocytes 4,500; differential count, normal. Kline and Kolmer tests for syphilis, strongly positive on two occasions. Gastric analysis after histamine, free acidity, 0; total acidity, 8. Stool, weakly positive for occult blood. Roentgenologic examination of the stomach after a barium meal showed an hour-glass deformity just below the cardiac orifice with what appeared to be hypertrophic rugae. A re-ray after administration of belladonna was requested. The subsequent x-ray study showed "a large organic hour-glass contraction of the vertical part of the stomach with considerable narrowing of the lumen which at the narrowest was not over 1 cm. in diameter (fig. 1). At six hours there was a small amount of retention." The radiologist expressed the opinion that the stenosis was organic probably due to syphilis, and that carcinoma was unlikely.

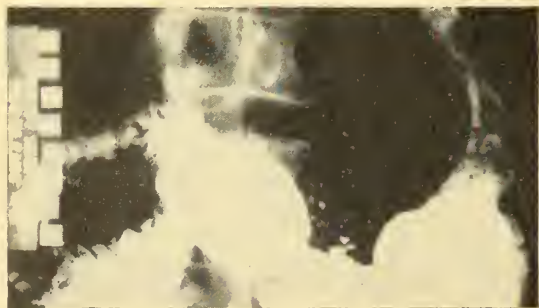


Figure 1. X-ray of the stomach in a patient with gastric syphilis.

Gastroscopic examination was reported as follows: "The pylorus and angulus appeared to be normal. The anterior wall at depth #1, was very edematous, and there were numerous mucosal hemorrhages. The posterior wall and greater curvature showed injected mucosa. In depth #2 nothing could be seen." The impression was chronic superficial gastritis.

A diagnosis of gastric syphilis was made and antileutic therapy instituted. She received injections of neoarsphenamine once a week for six weeks, beginning with 0.2 gm. and increasing to 0.45 gm. She was given thiobismol 0.2 gm. twice a week and iodides were administered daily. She improved remarkably, gaining 10 pounds in weight in a period of six weeks. Pain and vomiting were diminished but still occurred occasionally. She was discharged from the hospital to continue treatment in the outpatient clinic. An x-ray examination of the stomach three weeks after beginning therapy showed that no change had occurred since the original study (fig. 2). Shortly after she returned home, her symptoms recurred and she again began to lose weight. On readmission to the hospital, a surgical consultation was obtained and laparotomy advised. At operation, a nodule which was found on the liver, was removed and shown to be a gumma. The stomach was markedly contracted and thickened in the cardiac and fundal portions, and a total gastrectomy was performed with enteroenterostomy and a Wetzel jejunostomy.* Postoperatively the patient had a somewhat stormy convalescence which included several convulsions on the eleventh to the four-

*The surgical aspects of this case will be reported in another article by the Department of Surgery.

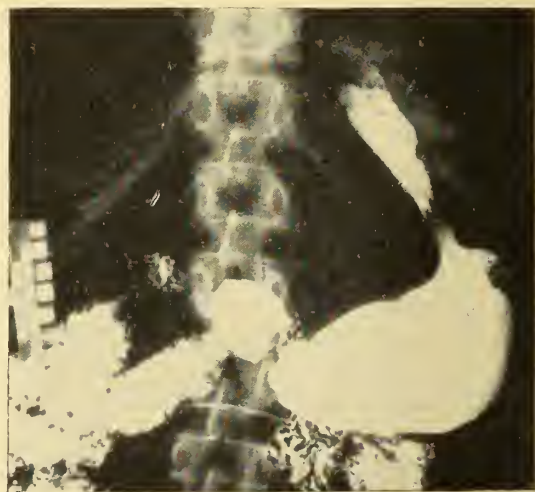


Figure 2. X-ray of the stomach in a patient with gastric syphilis after three weeks of anti-leutic therapy.

teenth postoperative days and evidences of cardiac embarrassment. The electrocardiogram, which was normal prior to operation, showed ventricular bigeminy, low QRS complexes, and low T-waves. However, on the eighteenth postoperative day, she was well enough to be up in a wheel chair and thereafter rapidly improved. At present she feels well and is gaining weight. The blood count is entirely normal but will be checked at intervals for the possible development of a macrocytic hyperchromic anemia in view of the total gastrectomy. She is being treated for syphilis in the outpatient clinic.

The gross and microscopic pathologic findings in the stomach were reported by Dr. Palik as follows: The proximal half was thicker and smaller than the distal half. The serosal surface appeared puckered and lusterless. There were two strictures. The first, at the cardiac end, was just distal to the esophagus and the lumen at this point measured 2.3. The lumen at the site of the second stricture measured only 1.2 cm. In this area the mucosa was puckered and retracted. The stomach wall was thick and leathery and the cut surface pale gray, smooth and glistening. The mucosa between the strictures was less pliable than elsewhere and normal rugae were absent. On microscopic examination, the submucosa was seen to be markedly thickened due to an extensive fibroblastic proliferation. There were numerous foci composed of lymphocytes, plasma cells, eosinophils and giant cells. This reaction was most marked in the region near the esophagus and in the stenotic areas. A number of the blood vessels were surrounded by collars of lymphocytes and plasma cells. Enderteritis was present in the areas of stenosis. The muscularis was of normal thickness but showed a moderate degree of interstitial fibrosis and infiltration with round cells. The process extended to a lesser extent into the subserosa. The mucosa showed no notable abnormalities except moderate attenuation in the stenotic areas. Sections through the distal part of the stomach showed no abnormalities of the mucosa, muscularis or serosa. The pathologic diagnosis was linitis plastica syphilitica.

COMMENT

This case illustrates the clinical, pathologic and roentgenologic findings in advanced syphilis of the stomach. There was a long history of pain, vomiting and loss of weight, with progressive increase in symptoms, in a 39 year old patient with syphilis. There was achylorhydria, absence of an abdominal mass, a positive Wassermann reaction, and characteristic x-ray findings of gastric lues. Corroborative evidence of syphilis was obtained by macroscopic and

histopathologic examination of the stomach which was removed at operation, and by the finding of a gumma of the liver. The patient improved considerably on antiluetic therapy for a brief period of time and then symptoms recurred. Perhaps relapse was due to increased fibrosis and contraction of the stomach following even this small amount of treatment. A surgical operation was necessary in order to rehabilitate the patient.

CONCLUSION

It is worthy of emphasis that the diagnosis of gastric syphilis can be made clinically if the possibility is kept in mind. The condition is probably not as rare as was formerly supposed, although it is infrequent. In patients presenting a positive Wassermann, gastric symptoms and roentgenologic evidence of structural deformity, syphilis of the stomach should be the primary consideration until some other diagnosis is proved.

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UNUSUAL FOREIGN BODY (FORK OF A BICYCLE HANDLE) IN THE BRAIN*

CASE REPORT*

N. LEON HART, M. D.†
AND
GILBERT C. ANDERSON, M. D.†
NEW ORLEANS

Foreign bodies in the brain are by no means rare, but certain circumstances sometime warrant the report of a case, as a review of the recent literature will show¹. In the case herewith reported the nature and extent of the injury were unusual, as was complete recovery under the circumstances.

CASE REPORT

A colored boy, 13 years of age, was brought into the accident room of Charity Hospital of Louisiana at New Orleans shortly after a fall from a bicycle. A portion of the front fork of the machine had penetrated the brain through the left orbital cavity. Later, when the boy was able to give a coherent history, he stated that as he was riding his machine over a rough road, he struck a large hump or stone, the bicycle slipped from under him, and he was thrown over the handlebars. At that moment the machine, like the parson's one-horse shay, apparently disintegrated, and he found himself with a portion of the front fork penetrating his head just above the left eye.

The boy was brought into the accident room on a stretcher, and the ambulance surgeon was carefully supporting the fork and front wheel of the bicycle to avoid further trauma. The patient was conscious and was not shocked; indeed, his general condition, in view of the character of the injury, was remarkably good.

*Read before the Orleans Parish Medical Society, July 14, 1941.

†From the Departments of Ophthalmology and Surgery of the School of Medicine of Louisiana State University and Charity Hospital of Louisiana at New Orleans.

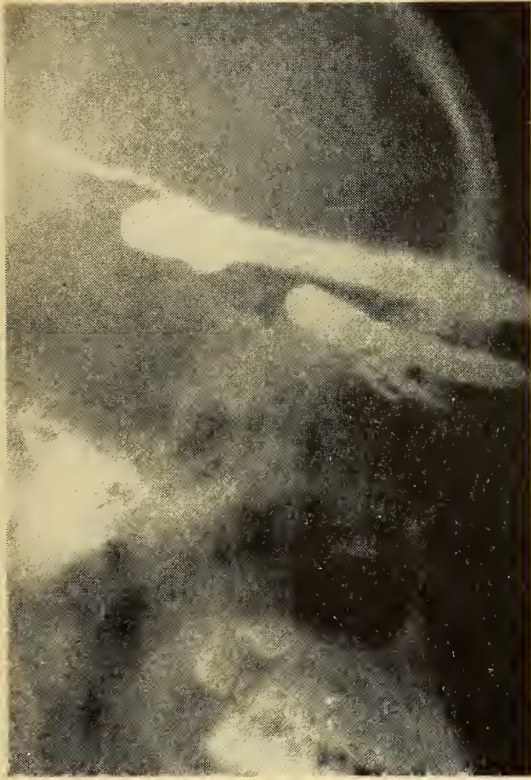
Roentgenograms made immediately with a portable unit showed that a portion of the fork had penetrated the left frontal lobe as far back as the coronal plane. Since it was almost impossible to move the boy without disturbing the foreign body it was decided to remove it in the accident room, after which further treatment could be carried out in the operating room. Nitrous oxide-oxygen anesthesia was therefore administered at once.

The fork was firmly in place in the head, but after removing the wheel it was possible by careful, gentle manipulation first to loosen the fork and then to remove it. A small amount of brain tissue extruded from the open wound in the roof of the orbit.

The defect was later enlarged in the operating room, exposing a rent in the dura through which softened brain tissue extruded. The tissue was gently removed by suction and sponging, further débridement was carried out, and an iodoform pack was laid loosely in the wound. At the end of the operation the patient's condition was still good, though his respiration was 24 and his pulse rate 192, and the systolic blood pressure had risen to 150.

The general condition remained good all through the night except for occasional vomiting. The following morning the boy was mentally clear and fairly comfortable except for a headache, which





visual acuity was 20/20 for each eye. The remainder of the neurologic examination was negative.

The patient returned for examination at the end of a month. At this time neither facial weakness nor drooping of lid could be observed, and the small healed scar was barely noticeable. He considered himself perfectly well, and follow-up examinations show that he has remained well to this time.

COMMENT

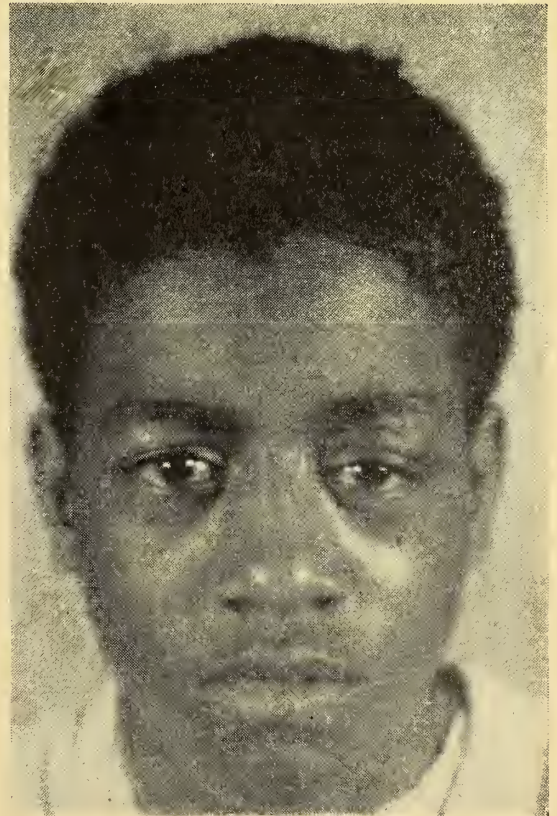
Among numerous interesting reports of foreign bodies in the brain which were encountered in reviewing the literature, only one was found which concerned entrance of the body into the orbit. In this instance, mentioned by Foss², a pencil had traversed the orbit and entered the frontal lobe. Foss also found in the French literature the report of a case in which a knife blade penetrated the frontal lobe "across" the orbit; in this instance the foreign body seems to have passed above the cavity rather than to have actually traversed it. Foss' own case is quite unusual: A crochet needle entered the posterior fossa by way of the

was not very severe. He had voided and was retaining fluids. Some weakness was apparent in the lower right side of the face, but the fundi were normal and the extremities showed no weakness whatsoever. Sulfapyridine was administered as a prophylactic measure.

The wound was dressed daily and the pack partially withdrawn the first and second days; on the third day it was completely removed. There was no bleeding and no signs of infection were evident. The fundi remained normal.

On the thirteenth day, just as the boy was about to be discharged, he had two generalized convulsions, associated with loss of consciousness, within an hour. The spinal fluid was found clear, under pressure of 260 mm. of water; it contained no globulin and less than 10 cells per cu. mm. The Wassermann and colloidal gold reactions were negative, and the culture showed no growth. The temperature was normal. Sulfapyridine was discontinued at this time. A check of the spinal fluid two days later showed it to be normal in all respects.

When the boy was discharged from the hospital, on the nineteenth day after the accident, he seemed completely well. The wound was entirely healed. The slight lag of the right lower face had persisted, and there was a slight ptosis on the left, but ocular movements were free, there was no diplopia, the fields and fundi were normal, and



mouth and the jugular foramen and trans-fixed the cerebellar lobe. A similar case was reported by Key and McCrummen.

SUMMARY

A case is reported in which one fork of a bicycle handle entered the brain through the orbit. It was removed, the wound was débrided, and complete recovery ensued.

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DISCUSSION

Dr. Dean H. Echols (New Orleans): It is a good thing that Dr. Hart brought photographs of this amazing case or we might not have believed it. Dr. Hart asked me about the foreign body which was removed from the brain of a patient on the Tulane service a year or so ago. I looked up the specimen and will pass it around. The patient was stabbed with a penknife in a quarrel. The blade broke off near the handle after piercing the temporal bone, dura and brain. No one knew, except the man with the knife, that the blade was missing. Some weeks later the boy came to the hospital because of headache. X-rays revealed the foreign body. To remove it we used the old cooky-cutter type of trephine, made a button of bone around the blade and lifted it out. I have it here and will pass it around.

DR. ANDREW W. SMYTH

A BIOGRAPHICAL SKETCH*

R. G. ALLEN
NEW ORLEANS

Dr. Andrew Woods Smyth was born at Castleberg in the County of Tyrone, Ireland, in the year 1832. When he was seventeen years old he came to New Orleans where he found work in a drug store at the corner of Camp and Poydras Streets. He soon began to study medicine, and in 1858 he was awarded the degree of M. D. from the New Orleans School of Medicine, a new school which was said to be cheap and very easy. From 1862 to 1887 he was connected with the Louisiana State Board of Health and was for many years house surgeon of the Charity Hospital.

Smyth was a most peculiar, odd, and disconcerting man. It is said that he was hard to converse with, due to the fact that he stammered badly. His face was always clean shaven, his eyes bright and piercing; only a slight and fleeting side smile betrayed his Irish strain and the wit that

were his. His surgical judgment was said to be irregular and uncertain.

He was a great lover of the microscope, and when Beck, the celebrated London maker, visited New Orleans, Smyth paid him one thousand dollars for one of his most expensive instruments.

Those who knew him said that he was timid and shy with women. He could not talk to them, did not understand them, and could not handle them. In spite of this alleged timidity, when he was a middle-aged man he became engaged to a lovely, frail Creole girl. He operated on her for a tumor of the neck and she died of tetanus. This tragic event crushed Smyth's rugged nature, and he would not speak of it even to his closest friends. Time proved to be a great healer and he married the granddaughter of Senator Boulligny of Louisiana. The union was blessed with one child, a beautiful daughter. According to writers who knew him, however, he evidenced no particular paternal affection.

In 1863 the Federals took possession of New Orleans, and General Banks put Smyth, a Republican, in charge of the Charity Hospital, where he remained for almost thirteen years. It is said that he was "a

*Read before the scientific meeting of the Orleans Parish Medical Society, January 27, 1941.

thorough autocrat of a rather despotic turn, backed by the Federal bayonets and the notorious carpetbag governors."

It was here in 1864, at the age of 32 years, that he performed his famous operation, the successful ligation of the innominate artery to cure an aneurysm of the third portion of the subclavian. Having been the first to cure such an aneurysm, Smyth immediately became celebrated. He was highly honored and it was some time before his glory was shared by another surgeon who cured the same sort of aneurysm by ligating the innominate artery.

This was truly the first great original surgical work ever done in Louisiana, and other than this bold operation, Smyth never performed any piece of work of unusual merit. It is for this surgical work alone that he is remembered.

The patient, William Banks, was a mulatto of 32 years, who had "strained" himself in holding to an anchor to keep from drowning after a collision at sea. At the time of the operation the tumor had existed for four months and had developed to the size of a small orange.

On May 15, Smyth ligated the innominate artery a quarter of an inch below its bifurcation, and the carotid artery an inch above its origin, the latter to prevent regurgitation. Fourteen days later, the ligature around the carotid artery sloughed, and the patient had a severe hemorrhage and developed syncope. About 16 ounces of blood was lost before the hemorrhage ceased of its own accord. For a period of thirty-seven days hemorrhage recurred at intervals and was temporarily arrested by filling the wound with shot, until on the fifty-first day after the operation a terrific hemorrhage took place, stopped by syncope.

Smyth believed that the hemorrhage came from the distal side of the ligature, and from the subclavian artery, so he determined to ligate the right vertebral artery which is the principal branch carrying a retrograde current into the subclavian artery. This he did on July 8. On July 9, the shot were removed, and no further hemorrhage took place. The patient felt

entirely well on September 15, except for a weakness in his right arm. Five years later he was enjoying the best of health and the cure was in every way complete.

The patient became a painter, which required considerable use of his right arm. Ten years later the tumor recurred and was larger than before. Smyth then ligated the internal mammary artery, but without benefit. The sac was threatening to burst, so it was opened with the hope of plugging the opening of the aneurysmal artery. The hemorrhage was so profuse that the opening of the vessels into the sac could not be seen, and the operator tried to plug the entire wound, but in vain. The patient died of hemorrhage a few days later.

Souchon, the late professor of Anatomy and Surgery at Tulane University School of Medicine, performed the autopsy, and dissected out the specimen which is now in the Army Medical Museum in Washington. In one of his articles, Souchon relates the thrilling and peculiar manner in which he secured the specimen. The mulatto had no family, but he belonged to a negro organization which clamored for the remains of their celebrated brother in order that they might bury him in the style befitting such an eminent personage. As the work of preparing the specimen was nearing its end, Souchon heard a great row in the waiting room of the dead house, and over all the voices he recognized that of Smyth who was trying to quiet them. As Smyth was a Republican, he had much influence over the negroes, but they wanted Brother Banks' body, and they wanted it badly. Souchon knew that the negroes would be in the dissecting room in a few minutes, so he quickly cut away the interesting parts of this world famous specimen from the remainder of the corpse, wrapped them in a cloth and passed the package out through a back window to one of the dead house attendants, who carried it to Souchon's waiting carriage. He then leaped out of the window and took another route to his carriage. He took the coveted specimen and hurried off at once to the college, "hugging closely," as

Souchon wrote, "my precious and ghastly companion."

Smyth could not hold the dead man's friends any longer, and one can imagine their shock and horror when they saw what was left of their hero—two legs, the viscera, and a left arm. Smyth was also surprised, but was glad to know that the specimen was saved. The negroes were satisfied with what remained of their friend and made as much over the remains as if they were his entire body.

After leaving the hospital, Smyth opened an office on Canal Street, but he did not like the life of a practitioner, and did not prosper in practice. He was Director of the Mint during the last ten years of his residence in New Orleans. While he was in office a fire broke out in the vault and there was considerable loss to the Government. Smyth was expected to pay for the damage, but as he did not have the means,

his bondsmen had to satisfy the Government's claim. This, of course, greatly diminished his prestige among his friends.

In 1894 he retired and returned to his native Ireland. His American wife and daughter led a dreary life there, but Smyth was happy, and that was all that mattered to him.

Smyth also conducted some original research on the kidney, and was the author of two books, *The Collateral Circulation of Aneurysm*, and *The Structure and Function of the Kidney*.

He died on September 4, 1916, in his eighty-fourth year, at Donemana in the county of Tyrone, near his birthplace.

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THE SUPPLY OF PHYSICIANS

It is very doubtful indeed if the intelligent population of this country has any concept of the number of doctors who actually are, directly or indirectly, working for national defense, giving a part or all of their time to the work necessary to maintain the required medical services. It is very doubtful indeed if the medical profession as a whole realizes that so many of their professional confrères are engaged in activities which remove them from civilian

practice, or at least reduce the time that they are able to give to the civilian population. The largest number of physicians in this country who are giving unselfishly a goodly number of hours a week are the doctors who are engaged in making draft examinations. Of the approximately 165,000 practicing physicians in this country, 26,000 of them are making examinations for the Selective Service Boards. Of this 26,000 it is estimated that between 16,000 and 18,000 are spending many hours a week at this job.

As full time medical men, the Federal Government has made a tremendous demand upon the medical profession. In the Army the medical personnel has been increased to 9,800 doctors and more will be needed; the Navy refuses to divulge its figures but probably they are around 3,000. The United States Public Health Service has nearly 1,000 full time doctors in their organized service and their reserve. There are 1,000 Civilian Conservation Corps Camps in the United States that require from one to three physicians each. The National Youth Administration is making use of a considerable number of doctors. In addition to the Federal Government, war industries are putting on many full time physicians. The same thing applies to camp, shipyard, munitions plants and other types of construction work. It is obvious that there is a tremendous demand for the services of medical men. It is self-evident that a large number of doctors of medicine have been drafted for service in defense who otherwise would have gone into civil life. As a correlary to these statements, it is likewise self-evident that there is going to be difficulty in supplying additional physicians to the Army. It goes without saying and is a well known fact that already the civilian needs for physicians cannot be met in certain localities and that this will become a growing problem. Even at the present time hospitals by and large in the width and breadth of this country are suffering from lack of interns and the high quality of hospital service is being lowered thereby in many institutions.

There is no question but that many of the young men who have taken salary jobs, as, for example in the Army, will want to retain such positions or to go into Governmental work after the emergency is over. This will still leave a large number of vacancies in the ranks of the medical profession after the present emergency.

The Central Government has spoken of a rehabilitation program. One wonders where the Washington authorities expect to get doctors to carry out such a program, granted doctors are available, which is dubious. Certainly it would be unfair and decidedly unjust to expect the doctors, as a national duty, to carry out plans for rehabilitation of the drafted men who have minor disabilities. If such a program is undertaken, positively and definitely the doctors should be paid for their work. They are now expected to give entirely too much time for services which are unpaid—to hospitals, indigent patients, draft board examinations and what not. Certainly there is no other profession that has given as large a percentage of its personnel to the country as has the profession of medicine. Most assuredly no other profession is giving as much gratuitous time to defense measures as is the medical profession. It would be too much to ask them to do more than they are doing.

THE ARMY MEDICAL CORPS

Within the last few days there has been issued from the War Department a bulletin relative to the commissioning of officers in the United States Army. The bulletin has to do with officers in general but its application to the Medical Reserve Corps and to officers who are to go into the Medical Corps is especially interesting to the medical man.

One of the reasons that many medical men have not gone into the Army has been due to the fact that they were expected to enter as 1st Lieutenants irrespective of their age, their professional ability and their professional standing. Naturally a more mature physician who has spent

some years in training to prepare himself for the practice of medicine does not wish to go in at the lowest rank that an officer can hold. He naturally feels that because of his skill and of his professional reputation that he is entitled to a rank commensurate with his knowledge and accomplishments. The Army has at last come to realize that it cannot expect the older man of excellent professional attainments to enter as a 1st Lieutenant, consequently regulations have been changed and it is now possible for a man to be appointed in the Medical Reserve Corps for the duration of the emergency with a relatively higher rank, the appointment to be made by the President.

Recently there has been set up a procurement division with five well known representatives of organized medicine who have as their chief function and purpose the procurement of medical men for services in the Army. Undoubtedly there will be an active campaign in a short time to obtain the older qualified medical man. The procurement division will have the opportunity of offering something at least commensurate with a man's ability, his training and his financial and economic responsibilities in civil life. In view of this change of procedure and in view of the fact that this procurement division is to function as a combined organized medicine-army undertaking, it is to be hoped that it will be able to obtain the additional medical men that the Army officials think are needed for the number of troops that are in service.

REGIONAL ILEITIS

One of the types of infection which is often recognized with difficulty is that which occurs in the condition known as regional ileitis, defined as a non-specific granulomatous inflammation of the distal loop of the small intestine, involving usually the ileum in the region of the cecum, but occurring almost anywhere in the small bowel. The condition is one which is relatively rare and the cause of it is not known. It resembles closely tuberculous enteritis but at no time has the tubercle bacillus ever been

found by inoculations in laboratory animals. Some are of the opinion that it may be a form of bacillary dysentery. This also has not been confirmed.

The disease commonly occurs as a low grade infection but acute ileitis is not uncommon; it is characterized by symptoms which resemble closely those of appendicitis. The pain occurs in the right lower quadrant of the abdomen, there is fever, leukocytosis, tenderness and rigidity, and the patient is operated upon with the anticipation of finding a diseased appendix, whereas it is discovered to be normal but the ileum a brilliant red and markedly injected. In these acute cases the diseased mass is untouched and returned to the abdominal cavity, and the patient usually returns to the former condition of good health.

The chronic type of regional ileitis is more common than the acute form; the patient will give a history of months or years of diarrhea, pain in the abdomen, gradual loss of weight and anemia. The movements, three to five a day, are semi-solid and contain pus, blood and mucous. With the bowel movement there is generalized abdominal pain, colicky in character, most pronounced in the right quadrant of the abdomen. As the disease progresses the chronically infected area gradually encroaches on the lumen of the bowel. Infection may result in the formation of fistulae which may go in

any direction but often advance to the anterior abdominal wall. In the examination of the patient a mass may be felt, varying in size, which is tender and not movable.

The special examinations include a sigmoidoscopy which discloses no involvement of the visible colon. The x-ray examination is quite typical. A misshaped, irregular, narrow lumen with a marked delay in emptying time of the ileum, is seen.

If the disease progresses, then about 10 per cent of the cases of regional ileitis will go on to partial intestinal obstruction. Fortunately the condition is now more frequently recognized and operation is resorted to relatively early in order to cure the disorder. This operation must be radical. All the diseased portion of the bowel must be removed and excised well above the site of pathology. As a rule the resection is followed by relief but approximately 15 per cent of the cases will recur. Recurrence is very much less likely to happen if there is a radical excision so that the surgeon should be cognizant of the condition and the necessity for drastic surgery, whereas the medical man, who may not find the disease full blown with typical and characteristic signs and symptoms, should appreciate that there is this condition which may occasion extreme ill health, which may be one of the numerous causes for a low grade diarrhea and which, in its chronic phases, is oftentimes cured by an operation.

HOSPITAL STAFF TRANSACTIONS AND CLINICAL MEETINGS

SOUTHERN BAPTIST HOSPITAL New Orleans

The regular monthly meeting of the Clinical Staff was held on Tuesday, November 25 at 8:00 o'clock in the Staff Room of the hospital. The fol-

lowing program was presented: "Case of Intestinal Obstruction with Ruptured Viscus" by Dr. William E. Marsteller; "Case Report of Hemolytic Jaundice" by Dr. E. A. Ficklen." The "death report" was the final business of the evening.

TRANSACTIONS OF ORLEANS PARISH MEDICAL SOCIETY

CALENDAR

- December 1. Board of Directors, Orleans Parish Medical Society, 8 p. m.
December 2. Eye, Ear, Nose and Throat Staff, 8 p. m.

- December 3. Clinico-pathologic Conference, Charity Hospital Morgue Amphitheater, 1:30 p. m.
Hutchinson Memorial Clinic Staff, 8 p. m.

- December 4. Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.
- December 8. Scientific Meeting, Orleans Parish Medical Society, 8 p. m.
- December 9. Eye, Ear, Nose and Throat Society, 8 p. m.
- December 10. Clinico-pathologic Conference, Charity Hospital Morgue Amphitheater, 1:30 p. m.
Touro Infirmary Staff, 8 p. m.
Women's Auxiliary, Orleans Parish Medical Society, Orleans Club, 3 p. m.
- December 15. Hotel Dieu Staff, 8 p. m.
Clinico-pathologic Conference, Baptist Hospital, 8 p. m.
- December 16. Charity Hospital Medical Staff, 8 p. m.
- December 17. Clinico-pathologic Conference, Charity Hospital Morgue Amphitheater, 1:30 p. m.
Charity Hospital Surgical Staff, 8 p. m.
Clinico-pathologic Conference, Hotel Dieu, 8:15 p. m.
The New Orleans Tuberculosis Hospital Staff, 8 p. m.
- December 18. Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.
- December 19. I. C. R. R. Hospital Staff, 12:30 p. m.
New Orleans Dispensary for Women and Children Staff, 8 p. m.
- December 23. Baptist Hospital Staff, 8 p. m.
- December 24. Clinico-pathologic Conference, Charity Hospital Morgue Amphitheater, 1:30 p. m.
- December 26. L. S. U. Faculty Club, 8 p. m.
- December 31. Clinico-pathologic Conference, Charity Hospital Morgue Amphitheater, 1:30 p. m.

During the month of November the Society held one regular scientific meeting, and one joint meeting with the Salmon Committee on Psychiatry and Mental Hygiene. The programs were as follows:

Regular Scientific Meeting, held November 10, 1941.

SYMPOSIUM ON MILITARY MEDICINE

1. The Medical Profession and Selective Service in Louisiana
By Major Frank P. Rizzo, M. C., State Medical Officer, Louisiana Selective Service System.
2. Problems Confronting an Army General Hospital with Reference to Disposition of Cases
By Lt. Colonel S. Charles Woldenberg, M. C.,

Chief of Surgical Service, LaGarde General Hospital.

3. Dental Deficiencies and Rehabilitation of Selectees
By Dr. Leo J. Schoeny.
4. Medicine in Aviation
By Lt. Commander James E. Fulghum, (M. C.) V. (G) U. S. N. R.

At the scientific meeting held November 10, the Secretary read the names of the physicians nominated for office of the Orleans Parish Medical Society, and delegates to the Louisiana State Medical Society for 1942.

THE GILLESPIE LECTURE

The joint scientific meeting of the Orleans Parish Medical Society which was to have been held on November 22 at the McAllister Auditorium, has been postponed until December 11. The necessity of postponing this was brought about by the inability of Dr. Gillespie to reach New Orleans on account of air travel. It should be noted that Dr. Robert Gillespie, who is the psychiatric specialist of the British Royal Air Force, will speak on "Psychoneuroses in Peace and War and the Future of Human Relationships" and Dr. Gillespie is giving this talk to some half a dozen of the more important cities in the United States.

NEWS ITEMS

Dr. Charles A. Bahn presented a paper at the meeting of the American Academy of Ophthalmology and Otolaryngology held in Chicago, October 22-23.

Dr. Ansel Caine recently attended the meetings of the Anesthetists Travel Club in Montreal and the Associated Anesthetists of the United States and Canada in Boston.

Drs. Edmund Connely, Walter J. Otis and T. A. Watters recently attended the meeting of the Southern Psychiatric Society at Nashville. Dr. Connely was elected vice-president of this society.

Dr. Joseph A. Danna was recently named vice-chairman of the National Fight for Freedom Committee.

Dr. T. J. Dimitry was recently awarded a medal and certificate by the Italian Ophthalmological Society of Mexico.

Drs. Julian Graubarth and Jack Strange recently attended a meeting of the American Academy of Pediatrics in Boston.

Dr. Frank C. Hava recently attended a meeting of the Inter-American Congress of Municipalities in Santiago, Chile.

Dr. Daniel M. Kingsley was elected president of the Big Ten Universities Club at a recent meeting of this group.

Dr. Francis E. LeJeune was elected vice-president of the American Academy of Ophthalmology and Otolaryngology at its annual meeting in Chicago, October 22-23.

Dr. Ambrose H. Storck presented a report on the use of antithyrotropic substances for preoperative preparation in hyperthyroidism at a recent meeting of the Surgical Investigative Society in Baltimore.

SELECTION OF OFFICERS

At a general meeting of the Society held Monday, November 10, 1941, the following nominations for Officers of the Orleans Parish Medical Society and Delegates to the Louisiana State Medical Society, 1942, were handed to the Secretary in accordance with the By-Laws:

PRESIDENT—Dr. Edgar Burns

Elected in 1941 to take office in 1942.

PRESIDENT-ELECT—Dr. H. B. Alsobrook

Endorsed by: Drs. Emmett L. Irwin, Roy B. Harrison, Edgar Burns, Daniel J. Murphy and C. Grenes Cole.

FIRST VICE-PRESIDENT—Dr. E. L. Leckert

Endorsed by: Drs. Roy Harrison, Theo. F. Kirn, Edwin H. Lawson and Daniel J. Murphy.

SECOND VICE-PRESIDENT—Dr. William B. Clark

Endorsed by: Drs. Roy B. Harrison, C. Grenes Cole, Paul Lacroix and Gilbert C. Anderson.

THIRD VICE-PRESIDENT—Dr. Daniel J. Murphy

Endorsed by: Drs. William B. Clark, Edgar Burns, George H. Hauser and George C. Battalora.

SECRETARY—Dr. Edwin L. Zander

Endorsed by: Drs. Edwin H. Lawson, Edgar Burns and E. L. Leckert.

TREASURER—Dr. A. V. Friedrichs

Endorsed by: Drs. Edwin H. Lawson, Walter E. Levy and J. A. White.

LIBRARIAN—Dr. Max M. Green

Endorsed by: Drs. E. J. Richard, A. V. Friedrichs and H. Ashton Thomas.

ADDITIONAL MEMBERS TO THE BOARD OF DIRECTORS

Dr. Paul G. Lacroix—Endorsed by: Drs. C. Grenes

Cole, George H. Hauser, John G. Menville and Walter E. Levy.

Dr. John Menville—Endorsed by: Drs. E. L. Leckert, H. Ashton Thomas, A. V. Friedrichs and E. J. Richard.

Dr. J. O. Weilbaeher, Jr.—Endorsed by: Drs. Emmett L. Irwin, Edgar Burns and William B. Clark.

Dr. Edwin H. Lawson—Past President.

DELEGATES TO THE LOUISIANA STATE MEDICAL SOCIETY

Dr. George Battalora—Endorsed by: Drs. Geo. H. Hauser, Gilbert C. Anderson and Walter E. Levy.

Dr. C. J. Brown—Endorsed by: Drs. C. Grenes Cole, Edwin L. Zander and J. A. White.

Dr. Frank Chetta—Endorsed by: Drs. E. L. Leckert, Edwin L. Zander and C. J. Vedrenne.

Dr. William B. Clark—Endorsed by: Drs. F. R. Gomila, Roy B. Harrison and P. T. Talbot.

Dr. Aynaud F. Hebert—Endorsed by: Drs. Daniel J. Murphy, Max M. Green and Walter E. Levy.

Dr. Theo. F. Kirn—Endorsed by: Drs. C. Grenes Cole, Roy B. Harrison and N. J. Tessitore.

Dr. Edwin H. Lawson—Endorsed by: Drs. Gilbert C. Anderson, E. L. Leckert and P. T. Talbot.

Dr. E. L. Leckert—Endorsed by: Drs. C. Grenes Cole, George H. Hauser and J. A. White.

Dr. Walter E. Levy—Endorsed by: Drs. Paul G. Lacroix, Maurice Lescale and H. Ashton Thomas.

Dr. Daniel J. Murphy—Endorsed by: Drs. Paul G. Lacroix and J. O. Weilbaeher, Jr.

Dr. Joseph P. Palermo—Endorsed by: Drs. C. Grenes Cole, H. B. Alsobrook and Daniel J. Murphy.

Dr. Cassius L. Peacock—Endorsed by: Drs. H. B. Alsobrook, C. J. Wichser and P. T. Talbot.

Dr. E. J. Richard—Endorsed by: Drs. H. Ashton Thomas and John G. Menville.

TREASURER'S REPORT

Bank Balance, September 30, 1941.....	\$5,566.40
October Credits	402.47
Total Credits	\$5,968.87
October Expenses	615.75

Actual Book Balance, October 31, 1941..\$5,353.12

Edwin L. Zander, Secretary.

LOUISIANA STATE MEDICAL SOCIETY NEWS

CALENDAR

PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
East Baton Rouge	Second Wednesday of every month	Baton Rouge
Morehouse	Second Tuesday of every month	Bastrop
Orleans	Second Monday of every month	New Orleans
Sabine	First Wednesday of every month	
Second District	Third Thursday of every month	

FIFTH DISTRICT MEDICAL SOCIETY

The second meeting of the year was held at the Frances Hotel in Monroe, Monday, November 24. An excellent scientific program was presented which consisted of the following presentations:

Cancer of the Large Bowel, by Dr. C. F. Dixon, Mayo Clinic.

Pelvo-abdominal Tumors, by Dr. V. S. Counselor, Mayo Clinic.

Paroxysmal Rapid Heart Action, by Dr. George Herrmann, University of Texas Medical School.

The meeting was very well attended, not only by the local members but also by other members and officers of the State Medical Society.

NEWS ITEMS

A committee composed of Drs. E. Perry Thomas, Randolph Lyons, and S. H. Colvin, Jr., is collecting money from the staff of Touro Infirmary for the purpose of erecting a suitable memorial to the late Dr. John A. Lanford. All members of the staff are asked to contribute in order to make available sufficient funds to erect a plaque to the memory of this distinguished physician.

The United States Pharmacopeial Convention will reconvene at the Statler Hotel, Cleveland, Ohio, Tuesday, April 7, 1942.

Swift and Company are offering a limited number of fellowships to universities and medical schools for research in nutrition. Those who are interested should address Dr. R. C. Newton, Research Laboratories, Swift and Company, Union Stock Yards, Chicago.

Mayor F. H. LaGuardia, Director of the Office of Civilian Defense, has announced the appointment of Miss Marian G. Randall as Nursing Consultant in the Medical Division of the Office of Civilian Defense.

The American Social Hygiene Association has announced that the Sixth National Social Hygiene Day will be held February 4, 1942.

SOUTHERN MEDICAL ASSOCIATION

The annual meeting of the Southern Medical Association was held in St. Louis. As usual the meeting was a pronounced success. An excellent scientific program was provided and the important social features were by no means neglected.

The following Louisiana physicians were registered: D. H. Abbott, New Orleans; John Adriani, New Orleans; Kotz Allen, New Orleans; T. Benton Ayo, Raceland; H. O. Barker, Alexandria; M. P. Barretto, New Orleans; Philip J. Bayon, New Orleans; Merrill C. Beck, New Orleans; Charles J. Bloom, New Orleans; F. F. Boyce, New Orleans; Shelton W. Boyce, Shreveport; Donovan C. Browne, New Orleans; W. H. Browning, Shreveport; Edgar Burns, New Orleans; B. I. Burns, New Orleans; Guy A. Caldwell, New Orleans; Albert E. Casey, New Orleans; Wm. B. Clark, New Orleans; Maurice Couret, New Orleans; Joseph S. D'Antoni, New Orleans; J. Preston Davis, Lake Providence; T. A. Dekle, Jonesboro; Vincent J. Derbes, New Orleans; Harold G. F. Edwards, Shreveport; S. Ernest Ellender, Houma; Ernest Carroll Faust, New Orleans; George D. Feldner, New Orleans; Robert L. Gordon, New Orleans; P. Graffagnino, New Orleans; M. T. Green, Ruston; W. F. Guerriero, New Orleans; D. P. Helms, New Orleans; A. A. Herold, Shreveport; E. D. Johnson, Monroe; Kenneth B. Jones, Shreveport; C. Barrett Kennedy, New Orleans; E. L. King, New Orleans; Jos. E. Knighton, Shreveport; Charles E. Koepp, Camp Claiborne; H. L. Lange, Camp Claiborne; Maxwell E. Lapham, New Orleans; Edwin H. Lawson, New Orleans; Lucien A. LeDoux, New Orleans; Maurice Lescale, New Orleans; Manuel B. Marquez-Escobedo, New Orleans; Rodney G. Masterson, Alexandria; W. R. Mathews, Shreveport; Chas. M. McGill, New Orleans; Alves Meira, New Orleans; Guzman A. Miguel, New Orleans; Emma Sadler Moss, New Orleans; M. B. Pearce, Alexandria; John L. Porter, New Orleans; L. J. O'Neil, New Orleans; Neal Owens, New Orleans; Joseph W. Reddoch, New Orleans; E. J. Richard, New Orleans; Ralph Riggs, Shreveport; A. G. Rojas, New Orleans; Frances C. Rothert, New Orleans; John T. Sanders, New Orleans; Wm. G. Sawitz, New Orleans; Joseph S. Shavin, Shreveport; Daniel N. Silverman, New Orleans; H. V. Sims, New Orleans; Jesse R. Stamper, Shreveport; Ray G. Stark, New Orleans; Lawrence H. Strug, New Orleans; J. C. Swartzweider, New Orleans; Harry E. Telbrock, New Orleans; Walker Thompson, New Orleans; C. J. Tripoli, New Orleans; M. T. Van Studdiford, New Orleans; Karl Vollmer, Davenport; H. W. E. Walther, New Orleans.

leans; T. A. Watters, New Orleans; Ford S. Williams, New Orleans; B. M. Wilson, Alexandria; Monroe Wolf, New Orleans; Roland Young, Covington.

Dr. Harvey F. Garrison, of Jackson, Miss., was named president-elect and will be inducted into office at the next meeting which will be held in Richmond, Va., in November of the coming year.

NEW DRAFT EXAMINATION REGULATIONS

The many physicians making physical examinations of draftees will be glad to receive a circular letter, sent from the Selective Service here in Jackson Barracks, relative to the new plan of procedure in physical examinations. This new plan will reduce materially the amount of work required of the examining doctor and will relieve, very markedly, a great deal of routine paper work.

Examinations under this new plan will begin in December, according to Major Rizzo, the army doing first examinations at Camp Livingston, during the second week of December. It is very likely the army examining station in New Orleans will be in operation beginning December fifteenth. It is to be noted that the entire state must be operating under this new system not later than January.

That portion of Circular 43 explaining in detail change of procedure for conducting physical examinations is reproduced here in so far as it applies to the local board examining physicians and members of the medical advisory boards.

1. In order to determine which registrants are apparently qualified for I-A and those apparently qualified for I-A but who have a condition which causes some doubt as to their final qualifications for I-A, the examining physicians and examining physicians (dental) will make a cursory examination of the registrants sufficient to observe obvious conditions which would disqualify them for I-A. Such conditions would include: hernias, marked or symptomatic hemorrhoids, blindness in one or both eyes, musculo-skeletal deformities or injuries, varicose veins (marked), mental incapacity (insanity, morons, idiots, etc.), total deafness, dumbness, insufficient height (less than 60 inches) or for great height (above 78 inches), absence of all teeth or use of one or two plates.

2. The examining physician and examining physician (dental) will indicate in ink on page two of the Form 200 that the registrant is "qualified", "doubtful", or "disqualified" in the following manner:

If the registrant is found qualified for general military service delete "qualified for limited military service" and "disqualified for military service for reason of."

If the registrant is found qualified for general military service but there is some doubt as to that finding proceed as indicated in the previous paragraph but add the word "doubtful" after "qualified for military service."

If the registrant is found "qualified for limited military service" or "disqualified for military service" the examining physician will delete those portions of his certificate which are not applicable and will note the condition which is considered to be disqualifying after the finding in the certificate in the space provided therefor. He will then sign the certificate. If found to be "qualified" or "doubtful" the registrant will be sent to the Army Examining Board. The Form 200 will, of course, be sent to the Army Examining Board with the registrant. If the registrant is found to be disqualified the Form 200 will be filed in the registrant's cover sheet and the local board will classify the registrant in I-B or IV-F, whichever may be indicated.

3. In addition to this inspection by the examining physician and examining physician (dental), the examining physician will be called upon to take additional blood specimens for serologic tests in the event the first specimen taken by an Army Examining Board is *not* negative. Then, too, the examining physician and examining physician (dental) will be called upon by the local boards from time to time for advice concerning physical qualifications and the advisability of returning a registrant to an Army Examining Station a second time.

4. The Medical Advisory Boards will be asked from time to time to make special examinations for registrants with this request by the Army Examining Boards.

5. The local boards, examining physicians and examining physicians (dental) should bear in mind that registrants who are obviously unfit for general military service should not be sent to the Army Examining Board at this time as this will be an unnecessary inconvenience to the registrant and an unnecessary expense to the Government.

THE NEW ORLEANS GRADUATE MEDICAL ASSEMBLY

The sixth annual meeting of The New Orleans Graduate Medical Assembly will be held March 2 through March 5, headquarters at the Roosevelt Hotel. The attendance has increased each year and from present indications the 1942 meeting will surpass all others. The popularity which the Assembly has enjoyed gives proof that the program offers the type of intensive post-graduate study the medical profession desires, presenting many new and outstanding features which are of interest to the specialists, as well as the general practitioner.

In keeping with the established policy, eighteen guest speakers will be on the program, each one prominent in medical circles. It is natural to assume that the program cannot be surpassed with a gathering of such eminent men. The Section on Cardiology will be represented by Dr. Frank N. Wilson, Director of the Heart Station at Univer-

sity, Ann Arbor, and Professor of Internal Medicine at the University of Michigan Medical School. The subjects he has chosen to speak on are "The Precordial Electrocardiogram," "What the Electrocardiogram Has to Offer in the Diagnosis and Management of Cardiac Diseases," "Curable Diseases of the Heart" and "Observations on Paroxysmal Tachycardia." The Section on Medicine will have two guest speakers, Dr. William H. Sebrell of Bethesda, Maryland and Dr. William B. Porter of Richmond, Virginia. Dr. Sebrell is Chief of the Division of Chemotherapy, National Institute of Health and Deputy Assistant Director for Nutrition, Office of Defense, Health, Welfare and Related Activities. His talks are on very timely subjects, namely, "Nutrition and National Defense," "The Clinical Importance of Vitamin B Complex Deficiencies" and "The Diagnosis of Subclinical Deficiency Disease." Dr. Porter, Professor of the Theory and Practice of Medicine, Medical College of Virginia will talk on "Acute Pericarditis," "Complications of Staphylococcal Cutaneous Infections," "The Diagnostic Significance of Changes in the Hands" and "The Clinical Syndrome Associated with Intercapillary Glomerulosclerosis."

Dr. Russell S. Boles, President of the American Gastro-enterological Association, will contribute generously to the program. Dr. Boles is not only outstanding in his special field but has the ability to impart his knowledge. Dr. Harry P. Smith, Professor of Pathology, State University of Iowa College of Medicine, will conduct the Clinico-pathologic Conference in addition to his lectures which will be of great interest. Dr. Smith has done outstanding research work on shock, plasma proteins, blood volume, vital staining, bile salt metabolism, blood coagulation and vitamin K. Dr. Ross Golden, Professor of Radiology, Columbia University College of Physicians and Surgeons, New York, has wisely selected as his subjects "The Miller-Abbott Tube in the Treatment of Ileus, with Emphasis on the Technic of Insertion," "Diseases of the Small Intestine Demonstrable by Roentgen Examination" and "Disturbances in Small Intestinal Physiology Associated with Certain Deficiency States."

Also on the first two days of the program are Dr. Charles C. Dennie, Professor of Clinical Dermatology, University of Kansas School of Medicine, Lawrence-Kansas City; Dr. Raymond W. Waggoner, Professor of Psychiatry, University of Michigan Medical School, Ann Arbor; and Dr. Irvine McQuarrie, Professor of Pediatrics, University of Minnesota Medical School, Minneapolis, and University of Minnesota Graduate School, Minneapolis-Rochester. Each of these men are among the country's foremost medical educators and their participation in the meeting will play an important part in its success.

Information concerning the program for the last two days of the meeting will be given in the subsequent issue of the Journal. It is hoped that many

doctors in the State of Louisiana will plan now to set aside a few days from their regular routine and attend the Assembly. The meeting offers an excellent opportunity to combine post-graduate work together with the establishment of good fellowship. The registration fee of ten dollars covers all features, including four daily luncheons as well as the smoker.

A CONDENSED REPORT ON THE STATUS OF AMERICAN MEDICINE AND THE OPERATION OF THE NATIONAL PHYSICIANS' COMMITTEE

On October 14, 1939—two years ago—the first letters and literature were mailed to physicians from the offices of N.P.C. The establishment of this agency is evidence of the fact that, at an earlier date and to a greater extent than any other group in the United States, American Medicine sensed and began to understand the need for and potential value of *Educational Propaganda*. (See Dr. Fishbein's statement, *New Conditions Demand New Technics*.)

In October, 1939, the Wagner National Health Bill was still before the Senate sub-committee on Education and Labor. The American Medical Association was awaiting trial in a Federal Court. Five officers of the A.M.A. and fourteen other physicians of Washington, D. C., were under Federal Grand Jury indictment on a charge of criminal conspiracy to restrain trade.

There were many physicians who were in doubt as to the soundness of our system of medical practice. A powerful lobby, headed by professional welfare workers and with powerful friends at court, was effectively active in state capitals and in Washington. Proposals were made which would have revolutionized the practice of medicine in the United States, including the placing of the distribution of medical care in the hands of laymen or lay groups.

The National Physicians' Committee was established. Three well-defined tasks were undertaken:

1. Clarifying the basic issues to a point of understanding for and within the profession;
2. Promoting the extension of the distribution of high quality medical care;
3. Educating the public to a point of understanding on the basic meaning of and the effective results from our system of independent medical practice.

Widespread Cooperation

The establishment of N.P.C., supplementing the efforts of existing medical organizations, stimulated medical journals in almost every state to the publication of articles and editorial comment on or in connection with the importance and effectiveness of our system of distribution of medical service.

As a new agency it aided in creating widespread discussion of this vital issue within county and state medical society groups. These discussions led to a clarification and understanding of the issue and toward unifying the profession. They stimulated local medical societies to undertake the providing of medical care on a cooperative or a prepayment basis. More than two hundred of these plans have been undertaken; two of them, the California Medical Service and the Michigan Medical Service, on the basis of state wide operation under medical association sponsorship.

These efforts have been vitally important. They have provided medical care for many thousands of people in lower income groups. More important, they have provided conclusive evidence of—

the fact that the medical profession has been and is fully aware of and alive to its grave and exclusive responsibility; namely, the providing of the highest possible medical care to all the people at the lowest possible cost. Further, and of even greater value, the experimental efforts have demonstrated that there is no panacea for the problem of medical care. The two vital factors remain,—the doctor and the patient.

Educational Efforts

Early in 1939, N.P.C. began its educational efforts. Approximately one million letters were mailed; a series of booklets and reports were issued and distributed to a total of approximately two and one-half million copies. These included *The Achilles Heel of American Medicine*; *The Minutemen of American Medicine*; *The Priceless Heritage*; *Statement of Post-election Position, Program and Policy*; *The Two Essentials for American Medicine*; and *New Conditions Demand New Technics*.

Two two-page advertisements in color were published in the *Saturday Evening Post*. Full page advertisements were published in nearly one hundred daily newspapers, under local medical society sponsorship.

These efforts were all concentrated on carrying through to the general public an understanding of the outstanding fundamental achievements of American Medicine, such as "The Highest Level of Health Ever Known," and the basic causes of the unusual achievements.

Is the Danger Past?

On September 24, Mr. Charles A. Togut, speaking before the National Fraternal Congress of America, warned that "state or governmental medicine will paralyze the country's fifty million voters and destroy the private practice of medicine. He said:

"National Defense has catapulted the issue of the 'Nation's Health' onto the front page of every newspaper and onto the burning wires of every radio transmitter. As in nations ruled

by the sword, malicious propagandists are piercing the heart of our incomparable system of medical care.

"The Congress of the United States is weighing the destiny of our peoples and of our doctors with numerous authoritarian legislative medical measures. The battle of the century, the government versus the American Medical Association, is but a prelude to the conditioning processes of a National Planned Medical Care Program, unless the American peoples, the doctors, the industrialists, the leaders of labor and capital can smother the most powerful propaganda factory in the world and inaugurate fighting means and methods to unite the leaders of medicine and industry in a progressive Health Insurance Movement."

Today, there is greater cause for fear and a greater need for constant and intelligent vigilance than at any previous time if the independence of medicine is to be preserved.

Causes

Actual needs of war participation are making necessary revolutionary changes in our social, industrial and economic structures.

It is reliably estimated that, during the short period of war effort, more than 3,400 new manufacturing plants have been built or are in the process of building, at a total cost in excess of thirty-nine hundred million dollars (\$3,900,000,000.00). Of this new productive equipment, the United States Government has financed or is financing the construction of 429 gigantic plants at an over-all cost in excess of twenty-five hundred million dollars (\$2,500,000,000.00). It is estimated that, during the next twelve months, these investments for new plant expansion will total more than 7,000 million dollars.

Tens of thousands of small business enterprises will be liquidated. An actual need has been created for a centralizing of production and the establishment of government controls and operations never before contemplated or even imagined in the United States.

The first obligation—the first responsibility—of the medical profession and each individual physician is to make a commensurate contribution to the defense effort. And it must be kept constantly in mind that, under any circumstances, ultimately medicine must serve under and mesh with the new conditions which will finally emerge from these revolutionary changes.

The Greatest Danger

Today, in the United States, there are more people gainfully employed, at higher rates of pay, than at any previous time. These generally larger earnings are beginning to influence more prompt payment for medical care. Shortsighted doctors, freed from a part of the sense of financial inse-

curity, are prone to forget or to ignore the more important issues involved.

It is true that this lessening of unemployment has removed one of the basic cause factors which led to the determined drive for the state control of medical service. However, the new advocates of "state control" and new factors demanding greater centralization of governmental authority have actually increased the danger. It is possible that the solution of the medical independence problem will necessitate approaching it from a broader base.

The New Responsibility

Now, there is the opportunity and the responsibility for medicine to take the lead in acknowledging the present need, cheerfully assuming its share of the immediate task—on the basis of the emergency—but, at the same time, building the safeguards which will insure ultimately a continuation of the American Way of Life and, incidentally, the independence of the medical profession.

The Proven Method

There is but one way. Its potency has been demonstrated by American physicians—*Educational Propaganda*.

The methods and the preliminary educational efforts of the physicians have been unusually—in some respects spectacularly—effective. The methods and the media can be indicated. It is as impossible to explain the "why" of the effectiveness as it is to explain the spiritual factors which enter into the curing of disease. The elements are as subtle as those of the "doctor and patient relationship."

There can be no question but that, if 150,000 physicians fully understood the N.P.C. purpose and fully comprehended the nature and subtlety of its operation, each and every one would desire to participate in its efforts.

Finances

The policy of the National Physicians' Committee has been to carry forward effectively segments or parts of a broad program. The extent of its activities has been determined by funds available for operation.

To carry forward all phases of a carefully conceived and well defined plan of nation-wide effort will require substantial funds yearly, and for a minimum period of three years.

It is now fully understood that the carrying on of this vitally important work is the direct responsibility of the medical profession.

During the past two years, individual physicians contributed to the N.P.C. efforts to the extent of approximately \$100,000. Individual local medical societies have made systematic canvasses of the membership of their societies respectively, and have provided financial support in amounts ranging from \$500 to, in one instance, more than

\$3,000. Forty-two and two tenths per cent of N.P.C. funds have come from sources other than physicians.

It has been demonstrated that—

a. The hit-or-miss method is too slow—is wasteful—and may jeopardize final results through inadequate funds.

b. This method places the responsibility solely on the shoulders of an enthusiastic minority.

c. Systematized action by an official committee of the local medical society will—

1. Produce adequate funds,

2. Spread the load uniformly,

3. Provide not only financial support but the interest and cooperation of the rank and file of physicians.

On October 17, 1941, a check in the amount of \$2,635.47 was received from the N.P.C. Committee of the Hennepin County (Minneapolis) Medical Society. Accompanying the letter of transmittal was a list of 224 physicians who had participated in the effort.

Throughout the United States, large local medical groups—including Los Angeles and Alameda Co., (Oakland) Cal.; New Orleans, La.; Houston and Dallas, Texas; Dayton, Ohio; Memphis, Tenn.; Lycoming, Pa.; St. Paul and Rochester, Minn.; have established special operating committees to systematize and unify support for carrying forward, during the coming period of stress, the vitally important educational work of N.P.C. These cooperating groups are looking forward to similar efforts by every local society in every state.

CIVILIAN DEFENSE

Dr. George Baehr, Chief Medical Officer of the Office of Civilian Defense, Washington, D. C., has announced the appointment of a subcommittee of the Advisory Board of the Medical Division, Office of Civilian Defense, to prepare recommendations on protective procedures for hospitals in the event of belligerent action.

Dr. Robin C. Buerki, dean of the Graduate School of Medicine and director of hospitals of the University of Pennsylvania, Philadelphia, a member of the Medical Advisory Board, is chairman of the new subcommittee and the members are:

Dr. Willard C. Rappleye, commissioner of hospitals, New York City.

Dr. Asabel J. Hockett, superintendent of Touro Infirmary, New Orleans.

Dr. Anthony J. J. Rourke, medical superintendent of Stanford University Hospitals, San Francisco.

Dr. Joseph Turner, director of Mount Sinai Hospital, New York City.

Dr. Huntington Williams, commissioner of health of Baltimore.

The subcommittee held its first meeting at the Hotel Commodore, New York, November 8. With Dr. James M. Mackintosh, former Chief Medical

Officer of the Scottish Ministry of Health, as a guest to advise the group, measures for preventing or minimizing damage to buildings, handling of casualties, evacuation, provision and protection of supplies, and training of personnel for specific duties in case of bombing were discussed in detail. The basis for discussion was a study made by a committee of the American Hospital Association on physical defense of hospitals, of which Dr. Hockett is chairman. It is expected that a report will be issued jointly by the hospital association committee and the committee representing the Office of Civilian Defense.

Dr. Mackintosh also conferred with the staffs of the medical and civilian protection divisions of the OCD at the Washington headquarters, November 7, describing in detail Britain's organization of its protective services, its early mistakes and the measures taken to correct them.

The basic organization for rescue work in a given area consists of three essential groups with a central control, police, rescue and fire services, ARP control and medical service.

One of the early mistakes was the belief that it was imperative to have first aid workers on the scene of a bombing immediately. Bitter experience showed that injured persons were usually buried under rubble and glass of their homes and that hours of work by the demolition and rescue squads were often necessary before first aid could be given.

Dr. Mackintosh emphasized the necessity for a central ambulance control. Ambulances are dispatched only by the central control and are not allowed to move from a bombed area until routes to hospitals have been surveyed. To stop "panic calls" from individuals, private telephones are now cut off the moment an air raid warning sounds.

First aid posts, in addition to their obvious function of caring for the injured, are invaluable as rendezvous for rescue workers, physicians and nurses as well as the general population, who may become lost in the blackout, frightened, choked and blinded by dust, he said. In the first aid post the workers can clean up, have a cup of tea and return refreshed to their activities.

Appointment of Regional Medical Officers

The Office of Civilian Defense has organized on a regional basis, with regions corresponding to the U. S. Army Corps Areas. A regional director has been appointed for each region with headquarters in the same city in which the corps area headquarters are located. Regional medical officers have been appointed as follows:

First Civilian Defense Region: Dr. Allan M. Butler, 101 Milk Street, Boston.

Second: Dr. H. Van Zile Hyde, 111 Eighth Avenue, New York City.

Third: Dr. W. Ross Cameron, 400 Cathedral Street, Baltimore.

Fifth: Dr. William S. Keller, 425 Cleveland Avenue, Columbus, Ohio.

Eighth: Dr. Witten B. Russ, Majestic Building, San Antonio, Texas.

Ninth: Dr. Wallace Hunt, 233 Sansome Street, San Francisco.

These physicians have been commissioned as senior surgeons in the U. S. Public Health Service.

Duties of the Local Chief of Emergency Medical Services

In order to expedite the organization of the Emergency Medical Services and provide for their effective administration, it is important that each local Civilian Defense Council appoint without delay a local Chief of Emergency Medical Services. He should be an outstanding medical leader and should be selected in consultation with the State Defense Council, the local Medical Society, and the local Health Officer. To facilitate the integration of all local medical resources into a comprehensive program for civilian protection, the local Chief of Emergency Medical Services should be assisted by a Medical Advisory Council, consisting of the local Health Officer, and experienced hospital executive, and representatives of the local Medical Society, the local nursing profession, the American Red Cross, and any participating voluntary agencies.

Under the administrative authority of the local Director of Civilian Defense the duties of the local Chief of Emergency Medical Services are:

1. To determine the scope of the activities of all official and voluntary organizations which are to participate in the emergency medical program of civilian defense, to integrate these organizations into the comprehensive local program, and to assist them in expanding their activities to the limit of their resources in personnel and equipment.

2. To assist hospitals in the locality to organize, equip and train Emergency Medical Field Units as outlined in Medical Division Bulletin No. 1, "Emergency Medical Service for Civilian Defense."

3. To inspect and select sites for the establishment of Casualty Stations.

4. To make a spot map of the locality, indicating the locations of hospitals, appropriate sites for Casualty Stations, depots for storage of stretchers, blankets and collapsible cots, and the locations of rescue squads. The map should indicate the number of Emergency Medical Squads in each hospital. Copies of the map should be supplied to Control Centers, Police and Fire Departments, Health Department, local Red Cross Chapter, State Defense Council, Regional Director, Regional Medical Officer and to all cooperating hospitals.

5. To plan and establish adequate transportation service for casualties and medical personnel in consultation with local government departments, American Red Cross and voluntary agencies.

6. To arrange with the local Control Authority for field drills of Emergency Medical Units and Squads in collaboration with police and fire auxiliaries, disaster relief and canteen services of the American Red Cross, ambulance transport service and other civilian defense units and to supervise such drills.

7. To make an inventory of hospital beds in the locality and of the possibilities for emergency expansion in bed capacity.

8. To assist the authorities charged with preparing plans for evacuation in making an inventory of hospitals, convalescent homes, sanatoria, hotels and other structures within a radius of 50 to 100 miles which might be used as base hospitals to which patients in city institutions could be evacuated.

9. To assist the local Central Volunteer Bureau in establishing courses for volunteers in the field of health, medical care, nursing and related activities.

10. To stimulate recruitment of volunteers for Nurses' Aide courses of the American Red Cross, assist the local Red Cross chapter in establishing Training Centers for Volunteer Nurses' Aides at appropriate hospitals and assist the Red Cross placement bureau in placing Nurses' Aides with hospitals, clinics, health departments and field nursing services after completion of training.

11. To stimulate and guide extension of First Aid training courses as widely as possible among the local population through the American Red Cross and other official and voluntary agencies.

12. To stimulate and guide industrial plants, business establishments and government bureaus in the locality in the training and organization of effective First Aid Detachments among the employees.

13. To collaborate with state and local health departments and through them with the Regional Sanitary Engineer in a comprehensive program for the protection of the community against emergency sanitation hazards.

14. To collaborate with local and State Defense Councils, Office of Civilian Defense, Federal Security Agency, Children's Bureau and other local State and Federal authorities in the preparation of plans for evacuation, with particular attention to the medical needs of the population under such circumstances.

15. To keep the community and particularly the members of the health and medical professions and the participating official and voluntary organizations informed of the plans and activities of the local Emergency Medical Services.

George Baehr, M. D.,
Chief Medical Officer.

HEALTH OF NEW ORLEANS

The Bureau of the Census, U. S. Department of Commerce, has reported that for the week ending

October 11, there were 133 deaths in the City of New Orleans, divided 81 white and 52 negro, and of this total there were 11 children under one year of age; six white and five negro. These figures are practically the same as for the previous week, reported last month. The following week there were fewer deaths in the city than have occurred for a long time. There were only 103 people in the city expiring in this week; 59 of which deaths were in the white race and 44 in the negro. There were 12 infant deaths this week, divided equally between the two races. As would be expected, there was considerable increase from the very low level of the previous week, for the week of October 25. Of the 139 deaths in the City of New Orleans this week, 88 were white people, 10 of whom were children under one year of age. There were 51 negro deaths, eight of whom were infants. The death figure in New Orleans for the week of November 1 obtained the lowest level that has been achieved for many years. The average number of deaths for this particular week is 142, whereas actually in 1941 in the week closing November 1, there were only 94 deaths, divided 55 white and 39 negro; six of the deaths being in white children and four in negro infants.

The death rate in New Orleans so far for the year 1941 is well below that of the previous year. As a matter of fact there have been 500 less deaths in the city this year than in the corresponding time last year.

INFECTIOUS DISEASES IN LOUISIANA

The morbidity report of the Section of Epidemiology of the Louisiana State Board of Health for the week which closed October 18, the forty-second week of the year, showed syphilis, as is customary, leading all other reportable diseases, with 478 cases listed during this particular week. Other diseases occurring in numbers greater than ten include 36 of gonorrhea, 22 of diphtheria, 16 of pneumonia, 14 of pulmonary tuberculosis, 13 of cancer and 10 of malaria. One case of poliomyelitis was reported this week and four cases of undulant fever. It is interesting to note that four parishes reported one case each of typhus fever. For the week closing October 25 there were listed 247 cases of syphilis, 68 of hookworm, 59 of gonorrhea, 32 of pulmonary tuberculosis, 20 of pneumonia, 14 of cancer, and 10 of typhus fever. The typhus fever cases were scattered throughout the state in many different parishes. One case of poliomyelitis was found in Vermillion Parish. The forty-fourth week was quite a remarkable week; there were only five diseases listed in numbers greater than ten. Of these diseases syphilis led with 280 cases. There were 18 cases of gonorrhea, 16 of pulmonary tuberculosis, and 10 each of typhus fever and malaria. The ten cases of typhus fever were, in reality, only seven as three of these had been previously reported but were transferred to Charity

Hospital for treatment. There were three cases of undulant fever reported this week. For the forty-fifth week of the year, ending November 8, there were tabulated 316 cases of syphilis, 55 of gonorrhea, 22 of pulmonary tuberculosis, 14 of pneumonia, and 13 of influenza. It is interesting that in this particular week, of the common contagious diseases of childhood, there were listed only one case of chickenpox, nine cases of diphtheria, no cases of measles, four cases of scarlet fever, and six cases of whooping cough. In this week there were reported five cases of typhus fever.

NEW MEDICAL OFFICER EXAMINATION

The Government is faced with a critical need for physicians to serve as Associate Medical Officers in the Federal civil service in such agencies as the Veterans Administration, the U. S. Public Health Service, the Indian Service, and others. In August of 1940, the Civil Service Commission announced an examination to fill Medical Officer positions of various grades in the Government service. This examination has been closed and reannounced with certain modifications. Applications will be accepted until further public notice.

The examination covers three grades: Associate Medical Officer, \$3,200 a year; Medical Officer, \$3,800 a year and Senior Medical Officer, \$4,600 a year. Applicants for the Medical Officer grade must have graduated from a medical school (Class A) since May 1, 1920, and for the Associate grade, since May 1, 1930. No specified time limit is set for graduation for the Senior grade.

No written test is required. Applicants are rated upon their education and experience. The maximum age limit for all grades has been raised to fifty-three. Announcements and application forms may be obtained at any first- or second-class post office, or from the Civil Service Commission, Washington, D. C.

UROLOGY AWARD

The American Urological Association offers an annual award 'not to exceed \$500.00' for an essay on the result of some specific clinical or laboratory research on urology. The amount of the prize is based on the merits of the work presented, and if the committee on Scientific Research deem none of the offerings worthy, no award will be made. Competitors shall be limited to residents in urology in recognized hospitals and to urologists who have been in such specific practice for not more than five years.

Essays shall be in the hands of the Secretary, Dr. Clyde L. Deming, 789 Howard Avenue, New Haven, Conn., on or before April 1, 1942.

HOSPITAL FOR SALE

There is a hospital for sale at Big Timber, Montana: ten rooms, furnished, with equipped surgery. The building is entirely modern with hardwood

floors and concrete basement. Hospital can be used for living quarters and office by resident surgeon, if desired.

The city is located in the center of a rich farming and stock raising region with nearby "Dude" ranches and some of the finest hunting and fishing in the West.

Physicians of this community during the past thirty-five years have had paying practices far above the average. This hospital was built by one of them in response to a real need. His death and that of another surgeon makes this opportunity available. For further particulars write to the executrix, Mrs. A. F. Rice, 814 West Park Street, Butte, Montana.

WOMAN'S AUXILIARY

Louisiana State Medical Society OFFICERS

President—Mrs. Aynaud Hebert, New Orleans.

President-elect—Mrs. Clarence B. Erickson, Shreveport.

First Vice-president—Mrs. H. O. Barker, Alexandria.

Second Vice-president—Mrs. Cecil O. Lorio, Baton Rouge.

Third Vice-president—Mrs. B. L. Cook, Minden.

Fourth Vice-president—Mrs. R. W. O'Donnell, Monroe.

Treasurer—Mrs. Daniel J. Murphy, New Orleans.

Recording Secretary—Mrs. Rhodes Spedale, Plaquemine.

Corresponding Secretary—Mrs. Charles R. Hume, New Orleans.

RAPIDES PARISH

Mrs. Aynaud Hebert, state president, reports a very interesting visit to Alexandria. She attended the Auxiliary meeting and was greatly impressed with the fine attendance and the outstanding work being done. Before many more days roll by she will continue her state tour. She promises to visit every parish during the year.

ST. MARY PARISH

The Auxiliary to the St. Mary Parish Medical Society held its biannual meeting at the home of the president, Mrs. T. E. Dreher.

During the business session, it was decided to continue sending cards of appreciation to the Doctors on Doctor's Day. Arrangements are being made to send five dollars to the base hospital at Camp Blanding for the use of convalescents since the majority of St. Mary Parish soldiers are stationed there.

Mrs. Harold Metz read an interesting article on "The Lesson of the Old Sock" by Vicki Baum. Mrs. T. E. Dreher read an excerpt of Dr. Ralph Fenton's "The Task of the Auxiliary." Mrs. D. J.

Daspit read a poem entitled "Hay Fever," and an anecdote "Loses By a Throat."

Following the program delightful refreshments were served by the hostess, Mrs. Dreher.

SECOND DISTRICT

The Auxiliary to the Second District Medical Society held the October meeting at the home of the president, Mrs. P. P. LaBruyere, Marrero. The home was beautifully decorated with autumn flowers.

The state president, Mrs. Aynaud Hebert, was a guest and outlined the work for the current year.

The Second District Councilor, Mrs. Roy B. Harrison, was present and as usual made timely and helpful suggestions. To Mrs. Harrison, is due much of the credit for the growth of the Auxiliary.

The state chairman, Mrs. P. A. Donaldson, who is a Second District Auxiliary member, gave a resumé of the programs for the monthly meeting. Mrs. Donaldson stressed the importance of well planned programs to increase attendance.

The Membership Chairman, Mrs. J. J. Massony, reported three new members.

Red Cross sewing for the month, which consisted of about fifty operating gowns, was distributed among members.

Refreshments were served after the meeting.

Your president begs to call to the attention of each parish auxiliary the importance of two new projects, namely; the Red Cross and the Indigent Widows' Fund. Both are important as well as outstanding. She asks that all Red Cross Chairmen keep accurate records of all work being done, so that Mrs. F. Creighton Shute can have a complete report for the board meeting. The following letter speaks for itself.

Dear Auxiliary President:

You have been informed by Mrs. Hebert, State President of the Auxiliary, that the work for indigent widows of physicians will occupy an important part in the program for 1941-42.

In Orleans Parish this has proved an interesting and worthwhile activity for several years. It is financed by the Commemoration Fund which has been built up in this way: On the death of a member of the Orleans Parish Medical Society or of the Auxiliary, instead of flowers, a card is sent to the family stating that a donation has been placed in the Commemoration Fund in memory of the deceased and five dollars is transferred to the Commemoration Fund from the General Fund.

In like manner individual members of the Auxiliary make donations of any desired amount in memory of loved ones whether of the profession or not, and cards are sent the families by the fund chairman. Many people commemorate happy events in this manner, too.

We realize that in smaller auxiliaries it would require some time to build up a fund sufficiently large to be of practical use. But it is proposed that a general fund be created by donations from all auxiliaries from which the smaller groups may draw when in need. This too will require time to accumulate but as the demands on the fund will probably not be many, a working sum will build up fairly rapidly.

The fund is administered in a manner that will assure all possible privacy to the recipient. The name is known only to the person giving the information and the chairman making the investigation. The chairman refers to the person only by case number when discussing the need with her committee or the board. In this way the recipient is spared as much embarrassment as possible.

Mrs. Hebert will no doubt be ready to discuss this new project with you when she visits your auxiliary and meantime, if I can help you in any way, please write me.

Sincerely yours,

Mrs. James W. Warren, Chairman,
Indigent Widows' Fund.

Respectfully submitted,

Mrs. Jules Myron Davidson, Chairman,
Press and Publicity.

BOOK REVIEWS

A Primer for Diabetic Patients: By Russell M. Wilder, M.D., Ph.D., F.A.C.P. 7th ed. rev. Philadelphia, W. B. Saunders Co., 1941. Pp. 184. Price \$1.75.

Numerous previous editions of a book usually carry their own recommendations. Since 1921, Dr. Wilder has been developing a primer for diabetic patients to be used as a link between patient and practitioner. This tiny volume assists the doctor by answering the patient's questions regarding complications in the diabetic, namely those of pregnancy, visual disturbances, gangrene and tuberculosis. It teaches the patient the Benedict and

Gerhardt test and outlines the exact method of insulin administration and care of the instruments used. The author has arranged diet lists which may quickly be adapted to the patient's needs, at the same time allowing for a wide choice of foods. Rules for the control of a patient in diabetic coma are detailed for the use of the practitioner who treats this condition infrequently.

This edition differs from the sixth edition as Dr. Wilder here advocates the use of protamine zinc insulin and regular insulin to be administered simultaneously from a single luer. In this way, a

single injection can be well controlled by two pre-meal urine specimens daily.

This is a book to be recommended for the intelligent patient who is willing to weigh his food and earnestly try to understand his own case. The physician will find the book valuable in instructing the patient regarding his affliction.

TRAVIS WINSOR, M. D.

Synopsis of Diseases of the Heart and Arteries: By George R. Herrmann, M.S., M.D., Ph.D., F.A.C.P. 2nd ed. St. Louis, C. V. Mosby Company, 1941. Pp. 368. Price \$5.00.

A second edition is the best compliment the profession can offer an author. We gain from revision in that the second product usually does, as in this instance, benefit from the realization of certain deficits of the original.

An extensive thoroughness in synopsis is exemplified in 468 pages of review and constructive analysis by George Herrmann. Some may gather the impression that the work is too all inclusive, actually it impresses the reviewer with the increased knowledge available on cardiovascular disease.

There are many elementary treatises but one must appreciate the fact that this book is designed for and most valuable to the general practitioner and is not intended as a reference for the finished internist or cardiologist. The student benefits from Doctor Herrmann's experience as a teacher; he has appreciated their need for a practical review of their preclinical teachings.

The chapter on military cardiovascular examinations and interpretations, the references throughout, make one appreciate the cooperation of an excellent author and publisher in making available a book which reviews the literature to the months prior to publication.

GORDON MCHARDY, M. D.

An Introduction to Medical Science: By William Boyd, M.D., M.R.C.P. (Edin.), F.R.C.P. (Lond.), Dipl. Psych. F.R.S. (Canada). Philadelphia, Lea & Febiger, 1941. Pp. 358. Price \$3.50.

The nurse and those allied to medicine in technical or premedical capacities are all too frequently referred to textbooks far beyond their comprehension. This error has resulted in their failure to gain practical knowledge valuable to them and to those they assist and has left them bewildered in a field they should feel thoroughly familiar with.

As a nursing text Doctor Boyd's work corrects an appreciable deficit. The reviewer is pleased with the simplicity which brings the pre-clinical sciences down to lay understanding, renders them interesting and then briefly but thoroughly applies them to the practice of medicine.

It should be placed before every hospital executive and nursing school director. It should especially be reviewed by the physician lecturing to

nurses. The undergraduate and postgraduate nurse will find it a valuable reference and library addition.

Dr. Boyd is to be complimented on the call for a second edition. He has brought the text up to the present day knowledge on subjects pertinent to nursing.

GORDON MCHARDY, M. D.

Roentgen Technique: By Clyde McNeill, M.D. 2nd ed. Springfield, Illinois, Charles C Thomas, 1941. Pp. 329; illus. Price \$5.00.

This well known volume on roentgen technic has been revised and new material on fluorography, fluoroscopy, cholangiography, laminagraphy, and pineal localization has been added. The book is divided into four parts: Part I considers the head; Part II, the extremities; Part III, the trunk; and Part IV, exposure technic. The small section on definitions is concise and clear and includes the usual terms referable to x-ray technic.

All of the usual and most of the unusual positions and procedures employed in radiography are discussed. Each position is thoroughly and clearly explained by the text. On the opposite page are reproductions of a photograph of the patient in the described position and a diagrammatic drawing with labels of the resulting radiograph. The section on bone development consists of drawings illustrating the time of appearance and ossification of the epiphyses. Diagrams of the accessory bones of wrist, hand, foot and ankle are especially valuable as a source of reference. The bibliography of original articles describing unusual radiographic techniques and positions are distributed throughout the book and conveniently placed.

In general, few books on roentgen technic are equal to this volume and not one is superior to it. It is a necessity for every roentgen laboratory and of considerable value to anyone interested in radiography.

J. N. ANÉ, M. D.

Elimination Diets and the Patients Allergies: By Albert H. Rowe, M.D. Philadelphia, Lea & Febiger, 1941. Pp. 264. Price \$3.00.

The low index of reliability and specificity of skin tests to food substances in clinical allergy makes the incrimination of dietary offenders by that approach difficult. For many years the author has been an advocate of "elimination diets" as a method of studying patients in whom this type sensitivity is suspected; he has developed many followers.

This book is a result of several years of recent experience with the use of elimination diets. Because of the high incidence of cereal offenders, the cereal-free elimination diet has been recommended as an approach to the problem, in place of the former five diets, four of which contained cereal grains. Full indications and directions for its use

are presented. Other types of elimination diets and special diets for unusual cases are also included, together with menus to help the patient.

Although the main emphasis is on food allergy, some attention is given to clinical allergy in general.

STANLEY COHEN, M.D.

Abdominal Surgery of Infancy and Childhood: By William E. Ladd, M. D., F. A. C. S., and Robt. E. Gross, M. D. Boston, W. B. Saunders Co. 1941. Pp. 455. Price \$10.00.

This book fulfills a long needed want in American medical literature. As far as I am able to learn, this volume very probably represents the first book on this subject ever written in America. The authors have accordingly given to the profession a fine contribution of great value—a contribution which is devoted only to that field of pediatric surgery involving the abdomen.

The book is based principally upon the experiences of the surgical staff members of the Boston Children's Hospital, an experience that covers a period of the last 25 years. The contributions of other authors in this field are appropriately recognized throughout, and due credit is given in bibliographies at the end of each chapter.

The authors rather appropriately present, and adequately discuss not less than thirty-six subjects, each embracing one chapter, representing the known surgical diseases of infancy and childhood which involve the abdomen. Thus, congenital hypertrophic pyloric stenosis, intestinal obstruction, congenital atresia and stenosis of the intestine and colon, intussusception, congenital megacolon, appendicitis, hernia and many other conditions—some more or less rare—are given adequate consideration from every important viewpoint. The diagnosis, pathology and especially treatment of these various surgical diseases constitute very important phases of each chapter.

Preoperative preparations and care, and post-operative treatment in surgical diseases, especially of infancy, are important factors very well covered by the authors. These particular subjects are so markedly different from what the surgeon is accustomed to in the adult, that their consideration in the instance of each disease makes this volume, in my opinion, that much more valuable.

The style used by the authors is good and rather easy; and the volume is rich in good illustrations, many of which are photographs of cases treated by the staff, and others of which are illustrative diagrams.

Many rather rare surgical diseases of the abdomen seen in infancy and childhood stimulate an unusual interest. Their presentation and discussion makes this volume more complete. In general, I feel this book should form part of every general surgeon's library as it contains a wealth of information that would take much time to gather from the various sources to which one would otherwise have to refer. Accordingly, I would like to take this opportunity of recommending it to every general surgeon, who will often find many of his problems in this field adequately answered.

FRANK L. LORIA, M. D.

PUBLICATIONS RECEIVED

Bruce Publishing Company, St. Paul: *The Treatment of Infantile Paralysis in the Acute Stage*, by Elizabeth Kenny.

Elsevier Publishing Company, Inc., New York City: *The Biologic Fundamentals of Radiation Therapy*, by Friedrich Ellinger, M.D.

Columbia University Press, New York City: *Eye Hazards in Industry*, by Louis Resnick.

Grune & Stratton, Inc., New York City: *Functional Pathology*, by Leopold Lichtwitz, M.D.

Johns Hopkins Press, Baltimore: *The Value of Health to a City*, by Max von Pettenkofer.

W. B. Saunders Company, Philadelphia: *Occupational Diseases*, by Rutherford T. Johnstone, A.B., M.D.

Science Press Printing Company, Lancaster, Pennsylvania: *Rheumatic Fever in New Haven*, edited by John R. Paul, M.D.

Charles C Thomas, Springfield, Illinois: *The Modern Treatment of Syphilis*, by Joseph Earle Moore, M.D.

Williams and Wilkins Company, Baltimore: *Clinical and Experimental Investigations on the Genital Functions and Their Hormonal Regulation*, by Bernhard Zondek.

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DEVELOPMENT OF LEGAL PSYCHIATRY IN LOUISIANA*

ROY CARL YOUNG, M. D.†
COVINGTON

As early as 1804 Louisiana had laws regarding lunacy and the handling of the estate where persons were incapable because of insanity or other infirmities, and their interdiction and curatorship was necessary. Article 389 of 1804 French Civil Code or commonly called the Napoleonic Code, states: "No person above the age of majority, who is subject to an habitual state of imbecility, insanity or madness shall be allowed to take care of his own person and administer his estate, although such person shall, at times, appear to have the possession of his reason."

The physician is frequently consulted by the family or relatives of patients who show signs of mental instability of some type, and who refuse the assistance of the family physician, or who refuse to consult a psychiatrist who might help them. The family is always anxious, and properly so, to avoid court proceedings in the majority of cases, and yet realize that something must be done. Some of the patients are guilty of making threats to kill and get even with persons, because of their marked emotional condition or mental instability. Again, the alcoholic, while under the influence of alcohol, who becomes threatening and destructive, or driving a car while drunk, is another type of case. These persons can be

committed to an institution or jail or confined for observation, diagnosis and treatment, as the coroner sees fit after a charge of being "a delinquent, peace disturber, and a menace to the community" is filed. After an investigation, the coroner, under Act 241 of 1926, Section 6, can commit the patient to an institution by a State affidavit signed before a notary; this does not go through the courts. The institution receiving such an individual must report to the coroner.

INTERDICTION OF INSANE AND INEBRIATES

Civil Interdictions, Section 3837, Louisiana General Statutes, Dart, Volume 3: Duty of Judge having jurisdiction of interdiction: Whenever it shall be made known to the judge of the district court, by written complaint or information of any respectable citizen, that any insane person within his jurisdiction is indigent and ought to be sent to or confined in one of the state hospitals for the insane, or complaint that though not indigent he should be confined, it shall be the duty of the said judge of the district court having jurisdiction over such commitment, to issue his warrant ordering such person to be brought into court before him, and thereupon, said judge shall cause to be summoned two licensed and reputable physicians, one of whom shall be coroner of the parish, and the other the physician of the suspected person, if he has any, and neither shall be related by affinity or consanguinity to him, or have any interest in his estate. The judge and the two physicians shall constitute a commission to inquire whether such person be insane, and a suitable subject for a hospital for the care and treatment of insane persons, and for that purpose, the judge shall cause to be

*Read before the sixty-second annual meeting of the Louisiana State Medical Society, Shreveport, April 22, 1941.

†From the Fenwick Sanitarium.

summoned witnesses who know the person suspected of insanity. The physicians shall, in the presence of the judge, by personal examination of such suspected person and by inquiring, satisfy themselves and the judge as to the mental condition of the person being examined. If the two physicians do not agree, the judge shall determine the issue. Provided, that if the said commission shall be in doubt as to the sanity of the person brought before it for examination, and can not say that he or she is sane or insane beyond a reasonable doubt, then such commission may, if it sees fit, order such person committed to the proper hospital for observation during such a period as may be necessary for the proper determination of such person's sanity. Persons so committed for observation shall be governed by all the provisions of this act applicable to persons adjudged insane, in so far as they are applicable. Provided, further, that the provisions of this act shall not interfere with the present method of commitments of insane by the recorders of city courts of New Orleans upon affidavits; provided further, however, that the coroner's certificate required under section 2 (Para. 3838) of this act shall be likewise furnished for the insane committed by the recorders of the city courts of New Orleans. (Acts 1918, No. 68, Para. 1; 1938 No. 351, Para. 1).

Repealing Clause. Section 2, Acts 1938, No. 351, repealed all laws or parts of laws in conflict.

Acts regarding interdiction of inebriates—Louisiana General Statutes, Dart, Volume 3, Para. 3850: Any person who is an inebriate or habitual drunkard and by reason thereof is incapable of taking care of his person and of administering his estate, shall be liable to be interdicted and to be placed in the custody and care of a curator who shall have full authority and control of the person and estate of said inebriate or habitual drunkard, with power to place him in a hospital or other institution for the treatment and cure of said infirmity.

An inebriate or habitual drunkard within the purview of this act is defined to be a

person who has formed the inveterate habit or custom of getting drunk by the constant and confirmed use of spiritous malt or fermented liquors, whereby intoxication is produced and continued to such an extent as to deprive him of self control, and causing such a state of mental confusion as to render him incapable of taking care of his person and of administering his estate. (Acts 1890, No. 100, Para. 1; 1932, No. 191, Para. 2).

TREATMENT OF DRUNKARDS AND DRUG ADDICTS AT PUBLIC EXPENSE

Any inhabitant of this state who is of kin to or a friend of an habitual drunkard, as hereinafter defined, may petition the district court to and for the parish of the residence of such person, or the civil district court for the Parish of Orleans, for leave to send such person at the expense of said parish or city, to such institute for the cure of inebriates for the medical treatment of drunkenness and morphinism as the said court may designate. Which petition shall set forth the name, age and condition of such person, and that such person or those of his kin petitioning are not financially able to incur the expense of his cure, and shall set forth that said person is willing and will agree to attend such institution for the cure of drunkenness and morphinism; which petition shall be verified by the person making such request, and shall contain in addition thereto the written agreement of such person to take such treatment and to abide by the rules of the said institute for the cure of inebriates: And together with the names of three (3) taxpayers in the parish or city of his residence, stating that they are familiar with the facts set forth in the petition, and that they are familiar with the financial condition and circumstances of such person and of the petitioning kin, and deem it a proper case for assistance from the parish or city wherein the said person resides. (Acts 1894, No. 157, Para. 1). Court ordering treatment at public expense:

When such petition is filed, any judge of the courts referred to in section 1 (Para. 3853), if satisfied from examination that

the facts set forth in the petition are true, and that the said person has been a resident of the parish or city named in said petition for one year next preceding the application, and that such person of his own free will desires to take such treatment, then such person will be sent to an institute for the cure of inebriates for the cure of drunkenness or morphinism, provided said institution is located in the State of Louisiana, and that the managers of such institution will agree to treat such person for a sum not to exceed one hundred dollars (\$100.00): And the judge of the said court shall thereupon make an order that the expense of such treatment shall be paid out of the treasury of the parish or city named in said petition, as the case may be, in the same manner that other claims against such parish or city for the administration of justice are paid. (Acts 1894, No. 157, Para. 2).

Para. 3856: Meaning of word drunkard: A drunkard, as mentioned in the foregoing sections of this act, shall be deemed to include any person who has acquired the habit of using spiritous, malt or fermented liquors, cocaine or other narcotics, to such an extent or degree as to deprive him of reasonable self-control. (Acts 1894, No. 157, Para. 4).

Commitments by the court are of two kinds: No. 1—ordinary commitments; No. 2—formal commitments. Regarding these two types of commitments the Supreme Court held:

In *Vance v. Ellerbe*, 150 La. 388, 90 Sp. 735, the court in speaking of commitments under Para. 1768 et seq. of the Revised Statutes of 1870 (the former law on this subject), said: "The law provided then and has continued to do so to the present day, two separate proceedings for dealing with persons of unsound mind; the one for the constraining and confining of insane persons for their own and the public's protection, which is *ex parte* and in the name of the state, and the other dealing with the civil and property rights of such persons. One is informal and need not be set aside when the patient recovers; while the other is highly formal and requires all the solemnities of contested judicial proceedings, including a formal judgment to restore civil rights after the mental derangement has ended." (Quoted in *Oliver v. Terrall*, 152 La. 662, 94 so. 152).

Louisiana Civil Code—Dart 1932—Para. 417: Maintenance and custody of interdict: According to the symptoms of the disease, under which the person interdicted labors, and according to the amount of his estate, the judge may order that the interdicted person be attended in his own house, or that he be placed in a bettering house, or indeed if he be so deranged as to be dangerous, he may order him to be confined in safe custody.

INTERDICTION OF THE CRIMINALLY INSANE

Regarding the procedure in the criminally insane, or in trials where insanity is the defense, these proceedings are covered by Act 136 of 1932 and read as follows:

If before or during the trial the court has reasonable ground to believe that the defendant, against whom an indictment has been found or information filed, is insane, or mentally defective, to the extent that he is unable to understand the proceedings against him or to assist in his defense, the court shall immediately fix a time for a hearing to determine the defendant's mental condition. The court may appoint two disinterested qualified experts in mental diseases to examine the defendant with regard to his present mental condition and to testify at the hearing. By qualified experts in mental diseases is meant a physician expert in insanity who shall have been duly licensed in this State or another State and shall have been graduated from a legally chartered medical school or college, and who shall have been in the actual practice of medicine for three years since his graduation and for three years last preceding the acceptance of appointment for examination and who shall have had at least one year's experience in a hospital for mental diseases actually in contact with and examining insane persons or who shall have practiced as a specialist in nervous and mental diseases for a period of at least three years. The accused shall be kept under ob-

servation by said experts, and they shall proceed with an investigation into the sanity of the accused; and the experts shall have the right of free access to him at all reasonable times and shall have full power and authority to summon witnesses and to enforce their attendance. The said experts shall within thirty days make their reports in writing to the said presiding Judge. The findings of the experts shall constitute the report of the examination, and the report shall be accessible to the District Attorney and to the attorney for the accused. Other evidence regarding the defendant's mental condition may be introduced at the hearing by either party.

If the court, after the hearing, decides that the defendant is able to understand the proceedings and to assist in his defense, it shall proceed with the trial. If, however, it decides that the defendant through insanity or mental deficiency is not able to understand the proceedings or to assist in his defense, it shall take proper steps to have the defendant committed to the proper institution. If thereafter the proper officer of such institution is of the opinion that the defendant is able to understand the proceedings and to assist in his defense, he shall report this fact to the court which conducted the hearing. If the officer so reports, the court shall fix a time for a hearing to determine whether the defendant is able to understand the proceedings and to assist in his defense. This hearing shall be conducted in all respects like the original hearing to determine defendant's mental condition. If after the hearing the court decides that the defendant is able to understand the proceedings against him and to assist in his defense, it shall proceed with the trial. If, however, it decides that the defendant is still not able to understand the proceedings against him or to assist in his defense, it shall recommit him to the proper institution.

Whenever, on a prosecution by indictment or information, the existence of insanity or mental defect on the part of the defendant at the time of the alleged commission of the offense charged becomes an

issue in the cause, the court may appoint one or more disinterested qualified experts in mental diseases, not exceeding three, to examine the defendant. By qualified expert in mental diseases is meant a physician, expert in insanity, who shall have been duly licensed in this State or another State and shall have been graduated from a legally chartered medical school or college and who shall have been in the actual practice of medicine for three years since his graduation and for three years last preceding the acceptance of appointment for examination and who shall have had at least one year's experience in a hospital for mental diseases actually in contact with and examining insane persons or who shall have practiced as a specialist in nervous and mental diseases for a period of at least three years. The accused shall be kept under observation by said experts, and they shall proceed with an investigation into the sanity of the accused; and the experts shall have the right of free access to him at all reasonable times and shall have full power and authority to summon witnesses to enforce their attendance. The said experts shall within thirty days make their reports in writing to the said presiding Judge. The findings of the experts shall constitute the report of the examination and the report shall be accessible to the District Attorney and to the attorney for the accused. If the court does so, appoint such experts, the clerk shall notify the prosecuting attorney and counsel for the defendant of such appointment and shall give the names and addresses of the experts so appointed. If the defendant is at large on bail, the court in its discretion may commit him to custody pending the examination of such experts. The appointment of experts by the court shall not preclude the State or defendant from calling expert witnesses to testify at the trial, and in case the defendant is committed to custody by the court they shall be permitted free access to the defendant for purposes of examination or observation. The experts appointed by the court shall be summoned to testify at the trial and shall be examined by the court, and may be ex-

amined by counsel for the State and the defendant. When expert witnesses are appointed by the court as hereinabove provided, they shall be allowed such fees as the court in its discretion deems reasonable, having regard to the services performed by the witnesses, and they shall be reimbursed a reasonable amount for their traveling expenses. The fees so allowed shall be paid by the parish where the indictment was found or the information filed.

COMMITMENT OF THE FEEBLE-MINDED

This is covered by Acts 1918, No. 141, Para. 114; 1920 No. 139, Para. 2. This calls for an examination of the patient by a commission of two qualified physicians or one physician and one psychologist, to be selected by the Judge, and this commission shall inquire into all phases of the case, and especially the mental and social conditions. There is a special set of interrogatories prescribed by the Board of Administrators of the State Colony and Training School and these shall be made in duplicate. The Superintendent of the State Colony and Training School may refuse to accept any person committed to that institution who is not accompanied by an interrogatory filled out and executed in accordance with the request and demand of the Board of Administration.

CONCLUSION

There seems to be no reason for changes in the laws relating to the handling of mental cases.

All references are from Dart's Louisiana General Statutes, Volume 3, and Dart's Louisiana Civil Code of 1932.

DISCUSSION

Dr. Willis P. Butler (Shreveport): Dr. Young has covered so many subjects that it will be impossible for me, in a few minutes, adequately to discuss the paper as presented by him.

In my experience as Coroner of Caddo Parish for about 25 years, I have had a large number of alcoholics, narcotic addicts, insane, and feeble-minded cases, and every other kind of case that anybody decided to send to the coroner's office. I will not say much about the alcoholics. If we took all of them, and we do have to take those sent to us by the Judges, we would need much more jail capacity, at least double that which we have now. This is almost a hopeless situation here, at present, in this parish of 150,000 people.

The feeble-minded cases have worried us, not because the institution is unwilling to take them, but because the State has not provided adequate facilities for such cases. I think that it is a shame that we do not have something done to better the situation and to care more adequately for the feeble-minded cases. We find it necessary to keep a number of them in jail for weeks and months at a time. The narcotic problem is not as bad as it was several years ago. Covering a period of five years and eight months, we handled over sixteen hundred such cases and a great many of them were cured. I visited a government institution, which I understand cost \$5,000,000, built to handle addicts, and, although they do good work there, I believe that we did almost as well here in Shreveport at no cost to the government. Up to 1926, we had a great deal of trouble handling mental cases, but, during that year, Act 241 was passed and this has been a great assistance in our work. I have with me different sets of forms devised in this parish and now used rather extensively, where an individual who is interested in a mental case can apply to the Judge or to the Coroner and have the patient placed under observation. They only need to affirm that this patient is a resident of this parish, and, in their opinion, is probably insane, a peace disturber, a delinquent, or a menace to the community. A coroner should use discretion in these cases, and he is permitted to commit such persons to confinement for observation until he is satisfied what type of case he is. We are permitted to commit these patients to any place to be held or otherwise detained, and our legal advice here is that this means just what it says, either the patient be confined in the jail, hospital, or at home. If a coroner and his assistants feel that it is the proper thing to do and they find the patient insane, then the necessary commitment forms are prepared and application is made to an institution. We have perhaps fifteen to twenty insane persons in jail all the time. The state institutions are overcrowded, but they have been extremely kind to us and fair with us, and the superintendents give us due consideration. We perhaps make application for not more than ten per cent of our cases and keep a number of them under observation up to thirty days, when many of them go home well; thus saving much expense and the necessity of interdiction and commitments.

There has been some mention about changing the method of committing insane patients. In my opinion, it is important to consult the family physician, when there is one, as he and the family know most about the case in the beginning, but it is also important that the doctors who pass on these cases be qualified for this work. With the exception of Orleans and Caddo Parishes, there are few parishes having more than two alienists and psychiatrists, and, in my opinion, the coroner

is best prepared to serve. He and his trained assistants certainly should know more about such work than any members of lay groups or those not medically qualified. The coroner should have the privilege of calling in experts to assist him when needed.

Dr. C. S. Holbrook (New Orleans): We are very much indebted to Dr. Young for delving into the legal books and bringing up to date the laws relative to commitment of patients suffering from mental diseases and the feeble-minded. It is a difficult thing, for doctors especially, to locate the laws that really apply. I think it will be extremely valuable to have incorporated in Dr. Young's article all these complete laws, so that we can refer to this particular number of our Journal and locate them.

There is a good deal of difference of opinion between Dr. Young and myself, and I believe Dr. Bulter, as to the need of change in our laws. It is pretty well demonstrated, by the comparison with the majority of the states and those doing modern work in psychiatry, that our laws are rather inadequate. We are still in the majority of instances keeping these psychiatric patients as criminals. They are handled by the Courts; they are taken to prison; they are locked up in the same building, and even in the same cells with criminals. They are arraigned before the Court; formal charges made that have a criminal ring to them. They do not sound as though the patients are sick, but they sound as though they have committed some crime, and they are, therefore, before the Courts so charged. They are then taken finally to the institutions, not by trained attendants, but often by police authorities, frequently with a pistol strapped to the side. The man is treated as a criminal, not treated as a sick man. We believe today these people are mentally sick. Mentally ill persons ought to be treated by doctors and not by departments of the Court. In most states they have changed from what was done thirty to fifty years ago. In modern practice the individual is frequently not arraigned before the Court, not charged as being insane, but taken to the hospital for mental cases by the certificate of two physicians. They are often admitted without ever going to the Court, without ever going before a judge. They are committed for observation to the hospital by the certification of two physicians. The commitment is for a period that varies from 15 to 30 days. If prolonged treatment is necessary, then court procedure is usually done through the hospital staff and the court. Frequently, a formal commitment is not required. I am very much of the opinion that we should change our laws so that we may treat these people as sick individuals not as criminals.

It would be appropriate, before the paper is turned back to Dr. Young, for our Chairman to say something on the subject. Dr. Connely, as

Chairman of the Committee on Mental Health to the House of Delegates, has given a great deal of thought to the subject and I hope he will express his views.

Dr. L. A. Golden (New Orleans): Dr. Young's excellent review of "The Development Of Legal Psychiatry in Louisiana" is a useful reference for any physician in the state dealing with mental illness. However, I do not agree with his conclusion that the laws are satisfactory. I am glad that Dr. Holbrook made his statement as I am heartily in accord with what he said.

We must remember that several hundred thousand hospital beds in this country are occupied by mental patients, a larger number of hospital beds than is occupied by all the other illnesses combined. The very number of these patients should make us realize that their lives must touch directly or indirectly many of our own families or the families of our patients. I for one, am not willing to conceive that a relative of mine who is sick in his mind instead of his kidney or heart should institute the beginning of his treatment with many of the legal procedure and be handled by the same officers who how handle criminals. I do not think it matters how we disguise the words, anyone who listens to these laws at present cannot help but be impressed by the fact that sheriffs, police officers and coroners have a great deal to do with the early introduction of the mentally sick patients to his treatment. This has an important effect because it influences the patient's mental behavior and he is frequently made to feel that he has broken the law. He tends to react with fear and resentment as one might expect him to react if he felt that he was being somehow threatened.

I agree with Dr. Young that before these laws can be changed, better accommodations for handling mentally sick patients in their early stages are necessary. When we have such adequate provision for them, I am sure that the laws can be amended so that a greater distinction can be made in the handling of them from those who have broken the law. I believe that while we may be doing the best we can under present circumstances, these laws are not in keeping with modern methods of treatment and ought to be changed as soon as better facilities can be devised for the care of our mentally ill patients.

Dr. Edmund Connely (New Orleans): I feel as Dr. Golden does. Of course, I do not think anyone wants to treat insane people as criminals, Dr. Young or anyone else. But I believe the essential feature today is the development of our institutions. Let's get a place where we can put these people.

For many years, we have all advocated the development of observation hospitals in our Charity Hospitals. So far, we have advocated in vain.

It would meet with many objections that people have in regard to the law.

I recently visited one of the State hospitals, an institution designed to take care of 2600 to 3000, which is now handling over 4000 patients, and most of the buildings are fire hazards. The patients in the respective wards are crowded in so thick you can hardly get between the beds. It is to my mind unthinkable that we should add any further load to that hospital, and I believe changing and modernizing our laws would add a load to the hospitals. I think the first thing is to modernize institutions, develop facilities for handling patients, and then we can load more on to them. It is pathetic if you go to the State hospitals to see them, but that is something that the laws are not going to change; it would require money and the legislature has to appropriate that.

Dr. C. Grenes Cole (New Orleans): As you well know, preceding the last session of the State Legislature, there was a new commitment bill prepared by the representatives of the social agencies and their attorneys, without ever at any time consulting or advising with organized medicine. This bill was introduced in the Senate and its sister bill in the House of Representatives. It contained some features which we thought were bad and objectionable at that time. We contacted the attorneys and social agencies fostering this legislation and a conference between them and organized medicine was held in New Orleans. At this conference were present a number of attorneys, representatives of the social agencies and physicians, including some of our leading psychiatrists. The representatives of organized medicine felt at this time that it was unfair to throw the bars down to the commitment of patients to our insane institutions, as the bill proposed would have permitted, if this bill became law, thus filling these institutions with a great many patients who could be treated satisfactorily outside of these institutions and would, as a consequence, keep the patients who were really badly in need of institutional care from being admitted.

This bill permitted any two doctors to commit a patient to one of these institutions without giving the patient or the family of the patient the privilege of their day in court. I believe the commitment act, upon which we are working at present, giving the patient and the members of his family their day in court, if so desired, and the further judicial protection, a safeguard against railroading these patients into insane institutions. As you well know, the experience in the commitment of these patients has taught us to be ever on the alert that no unjust commitments shall be permitted as the result of differences ensuing from family quarrels between husband, wife or members of the family. It is a known fact that in many instances the husband makes every effort to commit the wife and the wife to commit the husband

and the family to commit their aged father or mother with little regard to the truth, facts and real status of the case, and for this reason I am firmly convinced that requiring the coroner, family physician and the judicial protection is a safe method of commitment.

I do not say that there should not be a department in the different charity hospitals throughout the state to take care of these patients until it is thoroughly determined by observation and study that he or she is a proper patient to be committed to an insane institution for institutionalization, and I cannot too urgently recommend that our different charity hospitals develop such a department for the observation and study of these patients definitely to determine whether or not these individuals should be committed to one of our insane institutions.

I am of the opinion that, until the state develops such observation departments or increases the accommodations of the insane hospitals, it would be inadvisable to change the commitment laws in this state because, if this is done, with the present accommodations many of the patients who are badly in need of being committed to these institutions would be denied admission due to the fact that the beds which they should by right occupy will be filled with alcoholics and other patients who could be treated in private or charity hospitals or at home.

The State Colony and Training School is sadly in need of more accommodations. I dare say that we have on file for commitment to this institution at least forty or fifty applications from the Parish of Orleans alone, and I understand a proportionate number of applications are on file from each parish of the state.

I wish to state here that I am not opposing any changes in the commitment laws simply because I happen to be the Coroner of the Parish of Orleans at the present time. The present act requiring the coroner of each parish to participate in the commitment of the insane to Jackson or Pineville only gives me in Orleans Parish a lot of heartaches and headaches, and I do not crave this privilege nor was I responsible in any manner for the act requiring that I as Coroner, participate in said procedures. However, as long as the present act controlling commitment of patients requires my participation, I shall be only too glad to perform my duties in the premises.

Dr. H. R. Unsworth (New Orleans): I hope to bring out in my paper, "The Present State of Psychiatry in Louisiana," certain questions that have been propounded here this morning. So far as my personal experience has been, I do not believe the law is wrong. But I believe it is the interpreters of the law who are at fault. My own experience with Dr. Cole has been so marvelous and his cooperation so adequate that it never occurred to me that a change of the commitment law

was necessary. I feel that if the coroners of the state would have some intelligence about the insane that would eliminate the necessity of changing the commitment laws. I well recall on my service at Charity Hospital we had a paretic from a parish in the state that we recommended for a state institution, and so notified the coroner of that parish, had the social service to do it. The coroner wrote back that he could not certify the man to the institution unless a charge was made by someone in authority, which seemed ridiculous to me. Here we were with a paretic individual who needed to be institutionalized and could have been transferred to Jackson from Charity, but this patient had to stay there as an expense to the hospital and the parish.

I still believe the law is sufficient and workable depending upon the person who interprets the commitment laws.

Dr. C. G. Cole (New Orleans): May I say just a word further?

There is no such law requiring certification like that in the city. We have incidents like that; we had one the other day certified by two of the doctors. They send the authorities down there to get the patient and send him straight to Jackson.

Dr. Roy Carl Young (In closing): In regard to the Hamilton report, we must bear in mind that the recommendations therein would give the State of Louisiana a system of mental institutions and procedures for the handling of mental patients second to no other state in the Union. This report is based on a five to ten year program for the completion of these recommendations.

There is no need at the present time for changes in the laws. The present laws cover the situation. There is, however, urgent need for more space, hospital beds, recreation facilities, trained personnel, and improved diagnostic procedures for the various mental hospitals.

It was certainly not my intention to leave the impression that the mentally ill should be treated as criminals. We know that these persons are sick, and just as sick as the pneumonia or typhoid patient. The earlier these patients are seen, properly examined and diagnosed, and early treatment started, the quicker will be the recovery in the majority of cases. Neuropsychiatric wards in the State Charity Hospitals, and a central psychopathic hospital, to act as a clearing house, with a thoroughly trained staff, are certainly needed.

Dr. Butler mentioned the interdiction of alcoholics and drug addicts. I do not think all of these people should be interdicted. Certainly, the state institution should be for the indigent case, and the well-to-do patients sent to some private sanitarium.

THE STATUS OF PSYCHIATRY IN LOUISIANA*

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NEW ORLEANS

I am presenting this subject, not with the idea of imparting anything new, but merely with the thought of emphasizing, in my opinion, the most common pitfalls responsible for the failure of psychiatry in Louisiana.

We must at first bear in mind that disorders of the nervous system have become a great medical problem. Bodily disorders, as a rule, terminate in recovery or fatality within a comparatively short period of time, but nervous disorders have accumulated until an unbelievable number of hospital beds in the United States are now occupied by nervous invalids. In order to meet the problem of nervous disorders where it can be approached most successfully, an earlier recognition of the prodromal symptoms and a closer cooperation between the hospitals, medical practitioners and neuropsychiatric clinics is necessary. In those medical centers where this approach is followed, a greater percentage is accomplished and these patients are returned to a useful place in society.

Regarding the care of the mentally sick in Louisiana we have been too much swayed by political personalities. There has been no stabilization of the manner in which the mental institutions of this state have been constructed, nor any permanency of psychiatric superintendents.

The earliest institutional care for the mentally ill, in Louisiana, which still maintains one hundred beds for this purpose, was given by the City of New Orleans, this being the City Hospital for Mental Diseases.

The East Louisiana Hospital, at Jackson, Louisiana, was established in 1847, and began to receive patients in 1848. The hospital at Pineville was opened in 1906. This

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†From the Department of Psychiatry, Louisiana State Medical Center.

location is within ten miles of the center of the state, and only one mile from the point of convergence of seven railroads. The training school for feeble-minded people at Pineville, was established in 1918 but was not opened until 1921.

After reading the criticisms of Samuel W. Hamilton, I am inclined to agree with the following conclusions in reference to the State Institutions of Louisiana: "These institutions have an unhappy history of frequent change of administration. Superintendents appointed without sound knowledge of their subject have served a little while and have been invited to resign. Assistant physicians too often have had the meagerest of training in their work. When competent staff members were brought in because they had undergone good training in other states, they had wearied of the petty insufficiencies of the hospitals and have left. The efforts of hard working and able men have been thwarted by lack of support, lack of tenure, and by a vicious administrative system that incessantly works harm to the patients.

"These hospitals are not only grossly inadequate from the standpoint of personnel, but of physical plant, equipment, and methods. For the most part the buildings of these institutions are fire hazards. The general state of repair cannot be praised, lighting is in many places inadequate, much plumbing needs to be replaced or at least supplemented, water sections being mostly inadequate, without privacy and not well kept. The dormitories are in many instances overcrowded, especially where disturbed patients are quartered.

"The study of the personality gets less attention than it should. Individual psychiatry can receive but little attention where medical officers are not enough in numbers to meet the demands of their work. They must distribute their attentions and consequently they necessarily apply themselves to the things that will keep the institution safely moving and let other things go.

"Medical records are scanty and leave much to be desired. The clinical records

do not contain an adequate story of what course the illness takes in the hospital nor of the treatment that is given the patient. The nursing personnel is poorly selected, poorly disciplined and attains mediocre results, due partly to the lack of training and to political interference in hospital appointments.

"No high praise can be given to attainments in the dietetic field in these institutions. The few skilled persons employed in these departments are struggling against great odds. They are in great need of equipment, and the food is served without regard to appearance, on metal plates or trays.

"Responsibility for amusement is scattered from the superintendent to the nursing staff; the programs appear scanty. There is some attempt at celebration of a few holidays and an occasional entertainment is offered. At the colony, a net and some balls are the only equipment for physical education. There is some supervised play. Manual and vocational training is meager and not organized.

At the present time there is no provision made for the isolation and care of the tubercular group in the State Hospitals for the Insane. This of course, should be corrected.

"Under the heading 'treatment, special groups and special measures,' the survey in cold but startling terms reveals the pathetic deficiencies in the medical treatment of the insane in Louisiana."

The State of Louisiana does not welcome patients to its hospitals or defectives to its Colony and School. This unfortunate attitude is clearly set forth in the commitment law which does not make it easy for the mentally ill to get the treatment they need.

Recently, I had a patient on the L. S. U. psychiatric service in the Charity Hospital of New Orleans, a paretic from an adjoining parish. I certified this man to be psychotic and asked for his transfer from the Charity Hospital to Jackson. The Social Service Department of Charity Hospital contacted the coroner of the parish who in turn stated he could not admit this

patient to the State Hospital for the Insane unless someone in the parish requested his confinement. It was impossible, under the present committment laws of the state, apparently, to transfer this man from the psychiatric ward of L. S. U. at Charity Hospital, therefore a situation was created in which the Charity Hospital had to retain the patient, on the ward, until such time as the matter could be adjusted. Obviously such a condition should not exist. If there is an administrative reason for keeping a sick man out of a hospital that was built and equipped to take care of his like, a method should be found to satisfy that reason without continuing the present situation. There are many state institutions that receive patients on their own application, without disadvantage.

Another unfortunate feature is the non-admission of pregnant women. Regardless of their illness or of their unsuitable living conditions, they are not allowed to have the benefit of mental hospital care.

Inasmuch as these commitment laws are not in order, I wish to take this opportunity to compliment Dr. C. Grenes Cole, Coroner of Orleans Parish, for his efficiency, promptness and courteousness in committing these patients to the City Hospital for Mental Diseases.

There is probably no reason for the manner in which the courts of the state are compelled to go to the expense and delay for seeking psychiatric advice regarding the offenders of the law who show psychotic symptoms. At present most of the parishes have to call psychiatrists from great distances to examine the prisoner. This entails traveling expenses, for the psychiatrists called, as well as large fees for their time. Obviously it is unfair to the person accused of the crime, who shows evidence of a psychosis, to have to rely on a hasty examination and conclusion, besides the unnecessary expense to the taxpayer of the state.

It is my belief that the State should establish a permanent lunacy commission, and that a prisoner who is suspected of

being mentally unbalanced be examined by the members of the commission before going to trial.

It is quite ridiculous that the general hospitals in the state are not equipped to care for the acute mentally ill patient until such time as can be determined the chronicity of their psychosis. Whether or not we admit it, the average layman rebels against entering a psychotic institution, and in many instances this would not be necessary if the general hospitals would provide properly for them.

As for the private psychopathic hospitals in the State I feel that we are rather fortunate. The De Paul Sanitarium has recently added a four hundred thousand dollar annex, as well as increased its personnel. Its hydrotherapeutic department is equipped in detail and it has been a great factor in reducing the amount of chemical sedation in excited patients. The Fenwick Sanitarium, at Covington, is also an excellent institution and is well known for its treatment of mild mental diseases, drug and liquor addictions.

When it is possible, where money is no object, to treat a patient in a private house, it is my opinion, as a result of many years' observation, that patients do not have the same chance of reestablishment as when in a special psychopathic hospital, and, where this is not possible, psychiatric clinics and departments are advocated. The ameliorative measures of institutional care may be embraced under three general heads: (1) general management; (2) medical treatment; (3) educational treatment.

Institutional treatment should possess the following advantages: complete medical supervision and special therapeutic facilities; restraint and general discipline; healthful physical and moral surroundings; and, last but not least, a cloistered retreat for familial infirmities. The value of hydrotherapy in mental and nervous diseases cannot be overestimated.

Of paramount importance in institutional treatment is the educational, industrial, and moral training patients receive. Under

education, I include physical as well as mental training, inasmuch as the two are more or less interdependent. Care must be taken to vary the monotony of training as much as possible; and the necessity of frequent reaction must not be lost sight of.

Moral training must proceed with the intellectual and the physical; and good discipline must be maintained by kindly firmness. The spirit of tender sympathy and unwearying kindness should influence every action in the treatment of the sad and distressing cases entrusted to the psychiatrist's care.

We should never forget to use the felicitous and truthful language of the Bard of Avon, that it is the special province of the psychologist to

"Fetter strong madness in a silken thread,
Charm ache with air, and agony with words"

I fear that my presentation has been somewhat disjointed. If so, it is because I chose to give you an idea of the spirit of psychiatric thought rather than to discuss in detail any specific problem. But I do feel that we have a contribution to make along the lines I suggested, and that if these objectives are borne in mind the necessary formulations to make them effective can be found.

DISCUSSION

Dr. Roy Carl Young (Covington): In the beginning of Dr. Unsworth's paper he stressed the necessity for careful study, especially from the viewpoint of etiology, of the cause of these breakdowns. This cannot be too strongly emphasized. Careful study of your patient, careful evaluation of your findings will put you on the correct road to the right treatment, which, when instituted early, and as soon as possible after mental symptoms begin to break through, will often result in more early return to normal citizenship or mental health.

Dr. Unsworth has taken up Dr. Hamilton's report. I think the Section had quite a bit of discussion on that yesterday following my paper, "The Development of Legal Psychiatry in Louisiana." No doubt, a great many deficiencies still exist in our institutions today. The thing is they have had too many patients for the accommodations; there has not been sufficient trained personnel for the manning of these institutions. There have not been sufficient funds allocated to the

support of these institutions, and as the result of it, the patient is the one to suffer. Too much has been in the hands of politicians, and not enough in the hands of the medical profession. Changes have been promised. I was speaking to Dr. Browning yesterday, of the Hospital Board, and he is very enthusiastic that his Board will be able to improve facilities, and make such changes as are recommended by Dr. Hamilton, before 1942. I certainly hope his enthusiasm will carry this program through, because, as we know, Dr. Browning is a hard worker.

There is not very much that I can add to the already very comprehensive paper of Dr. Unsworth, but I will say one thing, and that is with regard to appointment of a lunacy commission of a permanent type. That was one of the first ideas Long had when he became governor. At that time, there were quite a few, cases pleading lunacy. Quite a few, no doubt, were lunacy cases, but the matter was being pushed too far, and Governor Long had the idea of appointing a permanent commission. At that time, he considered the Professor of Psychiatry with two other psychiatrists. It would probably be better to have a permanent psychopathic hospital acting as a clearing house, and let the staff of that hospital, who would be properly trained, and had every diagnostic method at their command, arrive at a correct diagnosis of sane or insane of the lunacy case. The establishment of psychopathic wards in the small charity institutions throughout the State would be of great help in relieving congestion, and quite a few cases could be strained out through them before being sent into the state institutions.

Dr. Edmund Connelly (New Orleans): You all probably know that the cause of psychiatry is dear to my heart. I have been in it a great many years, and I feel there is a great deal to do in Louisiana in regard to psychiatry. Dr. Unsworth in his paper has covered a lot of ground rather briefly. He has given the outline of a great many things that need to be done. There is no question but that the hospitals need improvement. I think every physician in the State ought to visit the State hospitals. I think every lawyer and public official ought to be made to visit the State hospitals.

Some time back, I happened to talk to my baker in New Orleans, who is a State senator. I forget how the subject came up, but at any rate, it did come up. I said something to him about the situation at Jackson. His eyes got bigger and bigger. He was a member of the Legislature last year who held the appropriation down to practically nothing in comparison to what they need.

I think one of the finest things we could have for psychiatry in Louisiana today is a general understanding from the physicians as a whole, because I think it is from the physicians of the State that we have to expect the changes and

the advancement that we ought to have in psychiatry.

There is no doubt in the world that Dr. Young's idea of a clearing house is a good one. There is no doubt that Dr. Unsworth's idea of a commission is a good one. Unfortunately, in Louisiana, we have psychiatrists who are only in a few sections, scattered throughout the State. Unfortunately, psychiatric problems come up all over the State, criminal problems, things of that sort. All of these things should be met. It has been one of my own hopes that we should have a psychopathic ward in every hospital. In years gone by, I happened to work in the psychopathic department of one of the big hospitals of the East, and I feel, therefore, that if the physicians who have to pass these things would realize the advantage of having a department of that sort, realize how it could relieve the general wards of their problems and help in every way to care for the patients. I do not think we would have any trouble at all. I, myself, on a number of occasions have attempted to persuade the managers of one of our general hospitals to establish a psychopathic department, and every time it has been vetoed by the men on the staff because they were afraid it might disturb some of their patients.

I cannot help but feel that the most unfortunate thing that can happen to any man is to lose his mind, and I cannot help but feel that the man who is mentally sick is just as much entitled to treatment as anybody else. And I would like to say that the essential thing in Louisiana today is some organized plan, not only to build up and improve the State hospitals, but to plan a whole psychiatric program for the State of Louisiana.

SPASTIC COLITIS IN INFANCY AND CHILDHOOD*

CHARLES JAMES BLOOM, M. D.

NEW ORLEANS

INTRODUCTION

Spastic colitis first appeared in the literature as a pediatric entity in 1931. Whether this newcomer had either been suspicioned or described before is doubtful. Subsequently, in November 1938, before the Southern Medical Association, Oklahoma City, I brought to your attention this new manifestation in infants and children and reported 43 cases as having been encountered in my practice from 1931 to October 1938.

It was to be expected that the children born of a generation who had weathered the strain of the first World War—as well as the difficulties that followed, both mentally and economically—would reflect physically, mentally and emotionally these influences. Continued observations sustain this conviction. Especially is it true of those of the essential spastic colitis group. Lest this inference be misunderstood, in addition there are three other groups including cases that have an organic background as a basis for spastic colitis. With the addition of 23 cases being reported today, the total number of cases in this series is 66, covering in all ten years' observations.

TERMINOLOGY

The nomenclature—spastic colitis—is, to many, confusing as well as misleading, for it is hardly comprehensive enough in that it brings to our attention the colonic part of the disorder alone and erroneously places infection as basically responsible for its presence which usually is not the case. Especially is this true in its relation to pediatrics. Spastic colitis has many synonyms—"spastic colon" (Ryle); "unstable colon" (Kantor); "irritable (or spastic) colon" (Sippy); mucous colitis; chronic colono-spasm; unhappy colon; and colonic neuroses. In adults, an additional synonym has been named—neurasthenic indigestion. Many clinicians have expressed reasons for preferring one or the other of these respective names and have offered in support of same their justification of choice. Time does not permit of my discussing this at length, other than to suggest the terms colonic spasm and colonic neuroses as being much more in keeping with group I—that which interests me most and which, therefore, will be discussed in greater detail. This presentation includes also groups II, III, and IV, with cases reported but briefly evaluated. For the sake of clarity, these cases group themselves according to entirely different etiologic factors, as classified below.

*Read before the Louisiana State Medical Society, Shreveport, April 22, 1941.

CLASSIFICATION*

Group I: Essential spastic colitis due to faulty intestinal mechanics, influenced by lack of autonomic regulation. There is muscle incoordination and spasm of circular fibers independent of demonstrable lesion and unassociated with an anomaly. Kerley (1932) observed "... this phenomenon in spasmophilic hypertrophic infants and children in whom the constitutional inferiority, the nerve imbalance, is emphasized in the intestinal tract."

Limited or large sections of the bowel may exhibit spasm of circular fibers. Many, including myself, share the opinion that such spasms may be of short duration—a few seconds—or may continue for an indefinite number of days, months—rarely, years.

Group II: Spastic colitis due to pathologic conditions of the abdomen, either from within or without the intestinal tract—diseased appendix, spastic cecum, mesenteric adenitis, ulcers of intestinal tract, tuberculosis, celiac disease, polyposis, peritonitis, neoplasm, rectal fissure, hemorrhoid and intestinal parasites.

Group III: Spastic colitis due to congenital anomalies of the intestinal tract—atresia, megacolon, microcolon, bands, diverticulum, and an elongated, redundant sacculated colon and sigmoid.

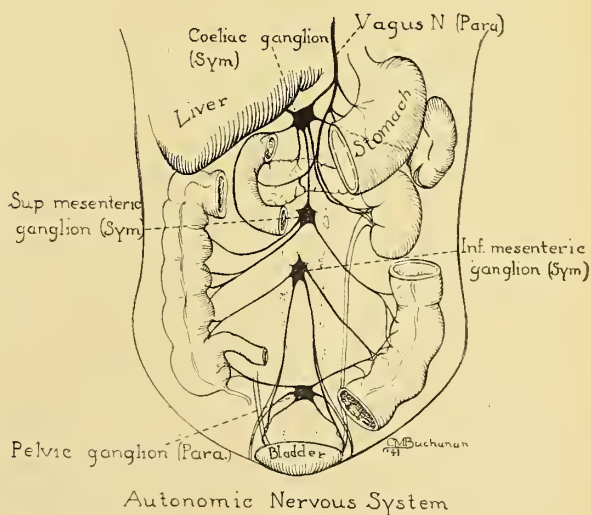
Group IV: Spastic colitis due to the use of strong purgatives, ingestion of alcohol, poisons and spoiled foods and also as a residuum of bacillary dysentery, and amebiasis.

REVIEW OF LITERATURE

In reviewing the literature with the hope of gaining some information regarding this very disagreeable and increasing entity in childhood, to my surprise and disappointment but little data were obtained. Kerley (1932) in a most interesting and complete article on "Intestinal Stasis in Infants and Children" has given to the profession an evaluation of 371 patients, with persistent gastrointestinal disorders, clinically and roentgenographically reviewed. His grouping, discussion and conclusions have given

me much food for thought. Interesting subject matter pertaining to the general consideration of spastic colitis with no limitations to age, has been written by Brougher (1932); Scarlett (1936); Smith (1936); Bockus (1937); Howard (1937); Soper (1938); and others.* Saxl (1937), in his textbook on "Pediatric Dietetics" discussed at length the management of diet. White and Jones (1938) have rightly called our attention to "The effect of irritants and drugs affecting the autonomic nervous system upon the mucosa of the normal rectum and rectosigmoid, with especial reference to mucous colitis." Jones (1940), Brougher, and Scarlett report cases of spastic colitis in children.

The incentive that originally prompted this paper dates to 1931, when a child having abdominal symptoms was operated upon for chronic appendicitis, and subsequently continued to have symptoms even more acute and aggravated than before. His gastrointestinal series was repeated and the spasticity revealed was far greater than that previously noted. With readjustment of daily regimen, a frank conference with the patient's parents, drugs, and a bland diet, much to the satisfaction of all concerned, he was returned to health, permanently and not temporarily. If for no reason other than to suggest another possi-



*Modification of Dr. Charles G. Kerley.

*Additional references not mentioned, but included in bibliography.

bility for constipation, an added cause for abdominal pain, and the withholding of a diagnosis of chronic appendicitis—this presentation should be interesting and invaluable to those of us who have difficulties in tentatively diagnosing chronic abdominal symptoms in childhood.

THE PHYSIOLOGY AND DISTURBED FUNCTIONS OF THE COLON AND ETIOLOGY

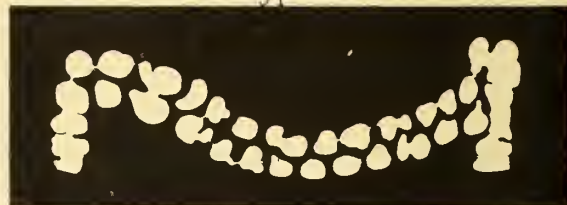
The studies of Cannon (1932) relative to autonomic regulations furnish me with an explanation why cases in this group are of so much interest and why they respond so effectively to medical treatment. He remarks, that "When the activities of the sympathetic and the parasympathetic system are considered broadly, it becomes obvious that the two systems interact with one another in the manner designed to maintain constancy in the internal conditions of the body." Therefore, it is acknowledged that the movements of the colon are dependent on the nervous (splanchnic) plexus in the wall of the bowel and that, in addition, are regulated by impulses from the sympathetic and parasympathetic system. The former is mainly inhibitory, while the latter, including the vagus, tends both to produce spasm and to increase the tonicity of the bowel. Pain resulting in spastic colitis is due to increased tension of the muscle wall. It is evident, as Barclay points out, that a healthy bowel requires "absolute freedom of movement and entire absence of fixed points." Scarlett (1937) interestingly remarks that "the motor activity of the colon serves the functions of absorption in the proximal part and propulsion in the distal part." Therefore, if normally the iliac colon tends to be free from fecal content and, at the same time, the cecum and ascending colon filled, the explanation of spastic colitis may be simply that it is an accentuation of the former. This, perhaps, accounts for the tendency of constipation in infancy and in childhood and for its high incidence. Hurst (1935) offers as an additional factor—the failure of the rectal reflex of defecation, known as a conditioned reflex, to function. The chance of having daily evacuations is influenced primarily by the proper diet of a child, a part of which



Irregular haustrations of colon



Stringy colon



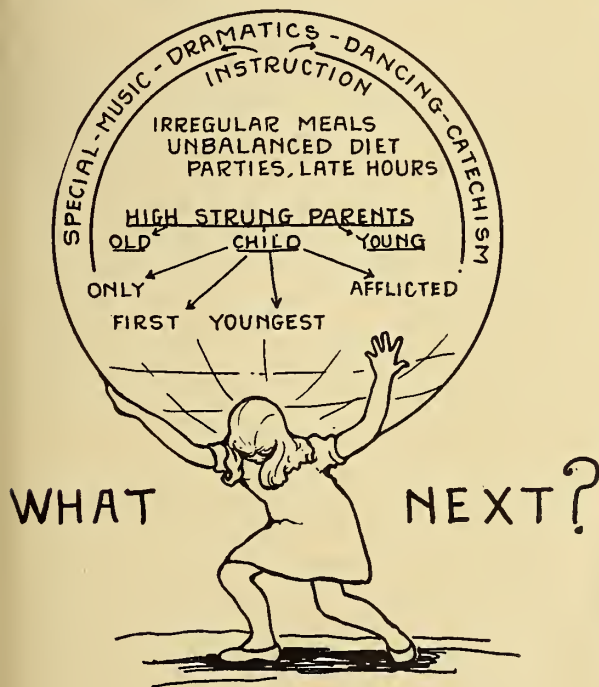
Rounded fecal masses



Tubular colon

must be considered bulk. The action of bacterial flora in the intestinal tract has a tendency further to digest this bulk and, finally, having been broken down physiologically serves as a means of stimulating the intestinal tract and obviates, to a greater or lesser extent, the necessity of frequent laxatives, purgatives, irrigations, and enemas. But, artificial cleansing of the bowel is only a small part of this very interesting clinical picture. The increased tonicity and irritability of the bowel offers "but a slim chance for fluid absorption and, in turn, tends toward irritation of the mucous membrane of the colon. Finally, the disturbance in spastic colitis centers around a neuromuscular mechanism and is most commonly noted in children who are "unusually bright, but who do not tolerate sustained mental effort." Therefore, from the foregoing, how can the fact be refuted that

misgivings following the last World War in particular, and of unstable parents who may have been affected otherwise, have left their residua in humanity. Autonomic regulation has been altered, dispositions changed, and outlooks for the future darkened with pessimism. But what of the children of this generation? Can we frankly delete from their heritage added placidness or accentuated nervousness? The former, but not the latter. High-strung parents have been, are, and will be basically responsible for neuroses in childhood, whether it be of one type or another, limited in this paper to intestinal imbalance. The drawing, "What Next?" illustrates best that which I am attempting to offer as a possible hereditary, as well as a probable environmental factor culminating, as it were, in the child whom we designate as high-strung and even, at times, incorrigible and who, in years to come, will find living most difficult—socially and economically.



Fortunately, civilization has given much to the world other than high-strung parents—an unfortunate group. In this regard there is unanimity of opinion. Disparagement and malignment of these parents is not intended. Equally true, however, is the

brief that I hold for the child who is the offspring—the one who is to live in their environment and be subjected to their peculiar, picky, pessimistic make-ups—at times such parents are most difficult for the children to live with.

Practically speaking, were more of us believers in the philosophy of Richardson (1928)—as partially told in his volume "The Nervous Child and His Friends," response to and appreciation of high-strung children who are "inadvertently responsible to influences" would be possible. Burdened in addition with added duties and studies, they are unable to carry through the average daily routine, much less the one planned for them.

There are many ramifications of parents of such children—perhaps you know them better than I. My paper, however, would be incomplete were I to omit the socially ambitious parent who thinks more of this aspect of life (perhaps for personal aggrandizement) than he or she does of good health and happy living.

ANALYSIS OF CASES

This series consists of 66 cases, including 30 cases in group I, 26 cases in group II, and 10 cases in group III. Group IV, whose causes are more pertinent to adult life, is considered in the grouping, but not discussed. These cases date from 1931 to April 1941.

TABLE NO. 1
NUMBER OF CASES IN GROUPS

Series I	Groups			Total
	I	II	III	
1931	2	0	0	2
1932	0	0	0	0
1933	0	1	1	2
1934	2	3	1	6
1935	1	3	0	4
1936	6	0	0	6
1937	4	5	4	13
1938 October	4	4	2	10
Series II				
1938	1	1	0	2
1939	5	3	1	9
1940	4	4	0	8
1941 April	1	2	1	4
	30	26	10	66

INCIDENCE

Race: Gentile children are more affected than Jewish, 59 of the former, and seven of the latter. Necessarily, this ratio will be different in reports to follow by other clini-

cians, and will be dependent upon what per cent of one or the other dominates their respective practices.

Sex: In contrast to adults, where the incidence is four to one, in favor of females, in this series of children males predominated, the ratio being 40:26 or 1.5:1.

Age: The largest number—40 cases—were from six to 15 years of age; the smallest number from birth to one year—four cases. From one to six years, 21 cases were noted. Infants are rarely found in group I, but are commonly seen in group III. My youngest case was seven months of age, the cause being a polypus.

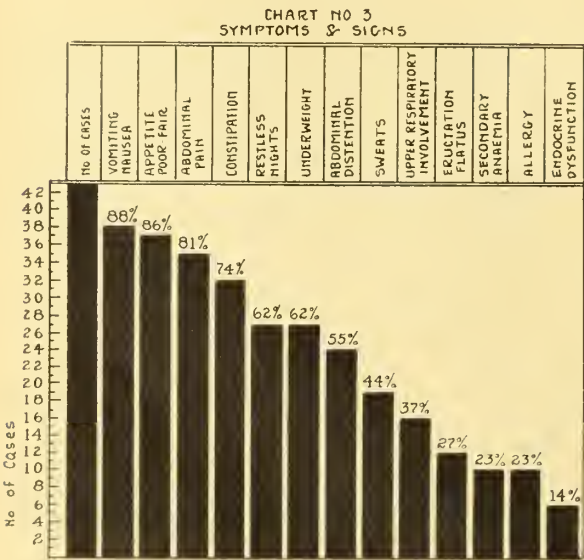
Which Child? and High-strung Parents: It is not surprising that the only child represents the largest incidence, and correspondingly the oldest and youngest follow in close succession. It is not difficult, also, to understand the influence of 39 high-strung parents on their progeny, much less the offspring from two so affected parents.

ties are affected more often than those residing in smaller towns.

TABLE 2
1931-1941 (April)
INCIDENCE—RACE, SEX, AGE, HEREDITY,
ENVIRONMENT

Race	Groups			Total Per Cent
	I	II	III	
Gentile	59			89.4
Jewish	7			10.6
Sex				
Male	40			60.6
Female	26			39.4
Age				
Birth-1 year	4			6.1
1- 6 years	21			31.8
6-15 years	41			62.1
Which child?				
Only	23			34.8
Oldest	17			25.8
Youngest	17			25.8
Middle	8			12.1
Adopted	1			1.5
High-strung parents				
Yes	39			59.1
No	26			39.4
Undetermined	1			1.5
One parent	20			.....
Two parents	19			.....
Residence				
City	39			59.1
Country	27			40.9

SIGNS AND SYMPTOMS



Residence: Interestingly enough, city children are more affected than country—there were 39 of the former and 27 of the latter. This, too, would be comparable to change depending upon whether a series was reported by one practicing in a large metropolis or in a rural district but, be it as it may, children living in large communi-

It is easy to infer why children with spastic colitis, as a whole, have anorexia. This symptom is observed in 55, or 83.3 per cent of the cases. Vomiting and nausea are commonly encountered and with abdominal pain occur in 53, or 80.3 per cent of the number. There is nothing particularly significant or pathognomonic relative to vomiting and nausea but, as a rule, nausea is more common than actual vomiting. Both are neither periodic nor continuous, but there are instances where food tends towards sedation. Abdominal pain is significant—one that adds another category to the numerous causes of pain in the abdominal cavity. The site of pain may be found at any point over the entire abdomen and, for this reason, spastic colitis may simulate other entities common to this part and, more particularly, appendicitis. Naturally, spastic colitis can mimic any one of these conditions and thus erroneous diagnoses can be made in good faith, unless there is a proper evaluation and additional study given to a particular case. The pain can be limited to one area for an indefinite period of time, or else it can migrate to some other

part of the abdomen. But, from statistics collected, it is more apt to be generalized than local. In this series, pain was more noticeable in the upper three quadrants and, in succession, region of appendix, in and around the umbilicus and, last, lower left quadrant. Jones (1940) states that in adults "the most frequent site of pain is over the sigmoid colon and the next most frequent, over the cecum. The right upper quadrant is the third most frequent site of pain, and around the navel almost as frequent." I concur with him that the left upper quadrant is the least common site of pain in spastic colitis. The pain varies in intensity. It may be so slight as to go unnoticed and, at other times, so intense as to

justify the giving of a strong sedative. It may be dull, lasting for an indefinite time, or it may be of the shooting variety. At best, it is annoying and does not add optimism to one's make-up. With excruciating pain, pallor is noted and another cause for sweats is discovered. These children are gas bags and if old enough ask for relief of this very annoying and frequent symptom. Underweight, constipation, and restless nights are the rule. Necessarily, if the condition remains undiagnosed, secondary anemia results from limitation of food. It is within reason to suppose that upper respiratory infection, allergy, and endocrine dysfunction play their respective parts as etiologic factors, either in whole or in part in a limited number of spastic individuals.

TABLE 3
SIGNS AND SYMPTOMS

	Series I—43 cases	Series II—23 cases			Total	Per cent
		Groups				
	I	II	III			
Number of cases.....	30	26	10	66		
Appetite (fair to poor).....	25	21	9	55	83.3	
Vomiting and nausea.....	24	20	9	53	80.3	
Abdominal pain.....	22	23	8	53	80.3	
Underweight.....	17	18	9	44	66.6	
Constipation.....	15	20	8	43	65.1	
Restless nights.....	16	14	9	39	59.1	
*Upper respiratory infection.....	11	14	5	30	45.5	
Abdominal distention.....	9	14	6	29	43.9	
Sweats.....	9	12	4	25	37.8	
Eructation and flatus.....	7	9	5	21	31.8	
Secondary anemia.....	9	5	3	17	25.8	
*Allergy.....	6	5	3	14	21.2	
*Endocrine dysfunction.....	3	4	1	8	12.1	

*Coincidental manifestations?

The diagnosis of spastic colitis of the children included in this paper was made through physical and radiologic findings. In all but one instance, a gastrointestinal series was made, the exception being a patient who previously had been operated upon for an appendicitis, which proved not to be the cause of his abdominal pain. Surgery is not a panacea for all ailments of the abdomen and far too often following an appendectomy erroneously "adhesions" have been attributed as the cause of continued pain, whereas as a matter of fact, the case has been incorrectly diagnosed. It must be understood, however, that in groups II and

III there are organic conditions, either congenital or acquired, that are responsible for symptoms referred to in this paper. The appendix is very often the offender. In these groups duodenal ulcer, Meckel's diverticulum, Hirschsprung's disease, polyposis, mesenteric adenitis, celiac disease, rectal fissure, intestinal parasites and elongated and sacculated colon have been noted. In group I, three have been operated upon; in group II, eight have had surgical intervention, whereas in group III, only one.

TREATMENT

The treatment is not limited to drugs alone, but better to an elimination of faulty

habits which tend to increase the nervous instability of the child. The parents, especially, must be instructed how to compose themselves, both in their demeanor and in their reaction and handling of their children. There have been instances where marked improvement was only obtained when the child was placed in the home of stabilized individuals and permitted to remain there until such time when his symptoms will have been improved and the necessary adjustment of the parents will have been effected. If a child is old enough, comfort and assurance will do much to shorten the duration of this entity and to make his or her outlook much happier for the future. Limitation of physical effort, reduction in number of activities, restriction of play, application of a well balanced diet, limited in carbohydrates and of a bland nature, specified hours for rest, adequate amount of vitamins, will all in their particular way do much to overcome as well as to obviate spastic colitis. If, by chance, the gastric contents reflects either a significant hyper- or hypoacidity this, too, must be taken into consideration. Belladonna, or one of its derivatives, and phenobarbitol, in increasing dosage, will aid our efforts in diminishing hypermotility and hyperirritability of the colon. Last, but by far not least, the restriction of strong purgatives must be adhered to, though it is granted that there are some children who, for the time being, may require a mild laxative.

TABLE IV
TESTS

*Gastric Contents	Group II
Hyperacidity	21
Hypoacidity	11
Normal	11
Not tested	23

CONCLUSIONS AND DEDUCTIONS

1. Spastic colitis (chronic colonospasm or colonic neuroses) does exist in infancy and childhood and adds another cause for pain in the abdomen.

2. Operation is not a panacea for all abdominal pain. Therefore, clinical and radiologic evaluations must be attempted and diagnosis made through elimination.

*Occasionally free acidity is low with a normal total acidity.

3. Spastic colitis may be due to: Group I, faulty intestinal mechanics; Group II, pathologic conditions of the abdomen, either from within or without the intestinal tract; Group III, spastic colitis due to congenital anomalies of the intestinal tract; and Group IV, spastic colitis due to other causes.

4. Sixty-six cases are reported: Group I, 30 cases; Group II, 26 cases and Group III, 10 cases. Diagnosis of spastic colitis was made by clinical and radiologic interpretations.

5. In these cases, race, sex, age, which child, high-strung parents, residence, gastric acidity have been reported and tabulated, discussed and evaluated.

6. Symptomatology has been discussed and recapitulated as follows: Appetite, 55 cases, 83.3 per cent; vomiting and nausea, 53 cases, 80.3 per cent; abdominal pain, 53 cases, 80.3 per cent; underweight, 44 cases, 66.6 per cent; constipation, 43 cases, 65.1 per cent; restless nights, 39 cases, 59.1 per cent; upper respiratory infection, 30 cases, 45.5 per cent; abdominal distention, 39 cases, 43.9 per cent; sweats, 25 cases, 37.8 per cent; eructation and flatus, 21 cases, 31.8 per cent; secondary anemia, 17 cases, 25.8 per cent; allergy, 14 cases, 21.2 per cent; endocrine dysfunction, eight cases, 12.1 per cent.

7. Radiographic examinations of the three groups have been made in detail, with conclusive findings.

8. Treatment has been discussed and outlined.

9. It is recommended that the illustration "What Next?" be forever kept in mind.

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DISCUSSION

Dr. Clarence H. Webb (Shreveport): We owe a debt of gratitude to Dr. Bloom for bringing to our attention this syndrome of spastic colitis which, as he contends, has not been recognized very long and is not now recognized as frequently as it should be. I only regret that more members of our section are not here to profit by the presentation.

Although the essential features of spastic colitis constitute a comparatively new syndrome presented in 1931, yet the autonomic imbalance which forms one of the striking features in the essential group one, has been recognized for a long time. The German authors spoke of this often, recognizing the frequency of neurogenic factors. Mader spoke of vagotonic motor neuroses and Langstein spoke of vegetative imbalance.

It was frequently recognized that autonomic imbalance had an influence on mucous colitis in both the adult and the child. The older authors also pointed out, many years before we heard of allergy, that children who had eczema during infancy were likely in later years to present the syndrome of spastic or mucous colitis. We see numerous manifestations of autonomic imbalance in the infant during early months; for example, it is not unusual to see the breast fed infant within one week to ten days after birth, after establishment of lactation, having numerous loose stools, six to twelve per 24 hours. In another two or three weeks this same infant may shift, completely to the other side and will quit having stools unless induced artificially, sometimes going six to seven days between eliminations.

The possibility of alleviating the disturbances of the sympathetic nervous system, such as occur in congenital megacolon, has been developed during

recent years. Interruption of the sympathetic nervous fibers by sympathectomy came into vogue a few years ago. However, this is a difficult surgical procedure and it is doubtful whether the results justify its use in most cases. Recently the production of this same effect by stimulation of the parasympathetic nervous system has resulted from the use of acetylcholin drugs, now being marketed under the name of mecholyl. Dr. Wolfe, in our clinic, has secured good results with this drug not only with Hirschsprung's disease, or congenital megacolon, but also with the infants mentioned above who had gone a good many days between eliminations, finding that with the use of mecholyl in 50 mg. doses, satisfactory stools are secured daily.

There is no doubt that civilization has as its by-products the nervous parent and the nervous child. There also is no doubt that the nervous parent overstimulates his child. Day after day in the office we see the varied effect of this excessive stimulation.

Dr. Bloom reports the predominance of the male child in his series. Possibly there is some essential sex influence on the sympathetic nervous system. Possibly, however, mothers may be more prone to overprotect male infants and children than the female.

I would consider of more significance than Dr. Bloom does, the influence of allergy or sensitization to certain foods in producing these states of colitis, whether it be diarrhea or the syndrome of which he is speaking. We often see the child, who during infancy had severe eczema or other allergic phenomena, develop in later years, diarrhea, constipation, flatulence, and other gastrointestinal difficulties on an allergic background.

Dr. D. N. Silverman (New Orleans): I think Dr. Bloom asked me to participate in the discussion because of all the children we had rather than my experience in pediatrics. The pediatricians and psychiatrists will be the ones to prevent many of the ailments which we later see in adults. The great number of adults who are taking detrimental laxatives, especially those advertised over the radio, is appalling. Some years ago, Drs. Menville and Ané, in their experimental work, showed in rats, some of these conditions of abnormal function of the intestinal tract produced by deficiencies in diet, which were mentioned by Dr. Bloom.

We like to speak of these functional disturbances as the spastic colon, definitely to differentiate these nervous (functional) disturbances of the intestinal tract from the functional disturbances which are found concomitant with the inflammatory conditions of the intestinal tract, especially the diarrheas, bacillary and amebic dysentery. Many of the adults, and perhaps children, are treated as functional disturbances, namely spasm, when they are often classic types of infection of the intestinal tract, particularly amebiasis and bacillary dysen-

tery. And these cases without diarrhea which I have mentioned are certainly not in the minority. Today, we believe the greater number of amebic colitis and bacillary colitis are the types which manifest a spastic colon.

Dr. Cecil O. Lorio (Baton Rouge): It has given me great pleasure to hear Dr. Bloom's presentation and his vivid picture of the syndrome of the nervous child and the gastrointestinal manifestations of the ill-adjusted and of that particular type of child. Dr. Bloom has very eloquently described four classifications of the spastic colon, but, in my mind, he probably evaded one that he did not have time to cover, and that is the one I want to cover, the abdominal asthma group. I am of the definite opinion that much of this so-called spastic colitis in children and infants is due to hypersensitiveness to particular foods. I do not say it without having some reason. I say it with what I think is some conviction. The hypersensitivity testing of some of these has definitely proved a particular allergen as the cause of the spastic colon. It has also been proved—I have not had anything to do with this—that some of those particular allergens, if compounded and used rectally, gave the same classical picture under the x-ray, the fluoroscope, and with the same clinical manifestations as may be had when a particular food is taken by mouth. The edema and spasticity, which are present with all the allergic symptoms in an organ that presents this syndrome, are no doubt the same. Some time ago, I had occasion to see a child operated on for appendicitis. His appendix was perfectly normal, but on the cecum he had an area two inches in diameter which was typical angioneurotic edema. They took the appendix out, but I doubt very much that that child had appendicitis. I think his symptoms will recur. And I think it would be well for those who have this condition to look to the eosinophilic count, which may be high. I know of two occasions where it was high, and simple administration of adrenalin saved two people from being operated on; for with the administration of adrenalin, their symptoms disappeared. Of course, this is only the acute type and those that simulate appendicitis, located in that part of the cecum or ascending colon that may have reference to the right quadrant. If it affects any other part of the intestinal tract, I question whether there would be right-sided pain. So that in these cases, if it is possible a complete sensitization study should be made with the allergen in dilutions of 1:10 and above; you will pick up some of the cases that have been omitted and probably find other factors responsible for spastic colon other than the four classifications. However, Dr. Bloom may have taken this into the four classifications but not enumerated it. I am sure that Dr. Bloom will not discredit what I have said, and I do not bring it up in any way to detract from what Dr. Bloom's paper has so thoroughly brought to us.

Dr. Ralph Talbot (Monroe): How about the children who have the appendix removed because they have upper respiratory tract infections, causing enlarged lymph nodes in the mesentery? Abdominal pains simulating appendicitis are often caused by enlarged mesenteric lymphadenopathy.

Dr. Charles J. Bloom (In closing): Unfortunately, there is a good bit that I had to delete in reading the paper, but you will find that I have not left out very much in the classification. I will incorporate in the published paper those conditions which are included in Groups II, III, and IV.

With regard to upper respiratory infection, allergy, and endocrine dysfunction, I have noted in this series that 45 per cent of the children had upper respiratory infection, that 21 per cent had allergy, and 12 per cent endocrine dysfunction. But I was not able at this time definitely to state whether we should put into the groups upper respiratory infection, or allergy, or endocrine dysfunction until some additional information had been given to us, feeling that perhaps those were factors in spastic colitis.

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VITAMIN STILBESTROL IN THE TREATMENT OF HYPO-OVARIANISM

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Since its introduction to this country in 1939, stilbestrol has been subjected to extensive clinical and experimental investigations. The estrogenic potency of the drug has been repeatedly demonstrated, and its value as an orally administered estrogen, especially in the treatment of the menopausal syndrome, has been generally accepted. In spite of the well demonstrated therapeutic efforts, stilbestrol has not been accepted universally because it may produce certain undesirable effects, the most prominent of which is nausea. All who have investigated stilbestrol clinically report an incidence of nausea varying from 15 to 50 per cent or more. That this symptom is not due to local irritation is suggested by the fact

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that it appears in some patients regardless of the method of administration.

In an attempt to overcome nausea in stilbestrol treated cases of the menopausal syndrome, various additional measures have been employed concomitantly with little or no relief. These measures include sodium bicarbonate, administration of the drug in milk, variations in the time of administration, and in size of doses. Since the nausea accompanying the use of sulfonamide drugs has been improved with adjunct use of vitamin products, it was thought that the addition of vitamin complexes* might minimize the nausea occasioned by stilbestrol.

A series of 35 patients with physiologic ovarian failure were treated with stilbestrol. These patients were seen at weekly, bi-weekly and monthly intervals depending upon their response to the preparation administered. Stilbestrol 1 mg. with vitamins was given to a series of 24. Those women reporting nausea from stilbestrol previously administered were given the vitamin preparation initially. Those patients developing nausea with stilbestrol alone, were then given the com-

TABLE 1
PHYSIOLOGIC MENOPAUSAL SYNDROME

Symptom	No. Patients	Complete Relief	Partial Relief	No Relief
Nervousness	34 (23)*	16 (12)	15 (8)	3 (3)
Hot flushes	31 (19)	26 (16)	2 (1)	3 (3)
Dizziness	32 (19)	24 (16)	5 (2)	3 (1)
Insomnia	30 (19)	25 (16)	3 (2)	2 (1)
Fatigue	33 (23)	23 (15)	6 (4)	4 (4)
Depression	27 (18)	23 (15)	3 (2)	1 (1)
Headache	30 (21)	19 (13)	5 (3)	6 (5)
Muscle and joint pain....	30 (20)	15 (9)	13 (10)	2 (1)
Mastalgia	13 (8)	12 (7)	1 (1)	0
Nausea	29 (20)	24 (16)	1 (1)	4 (3)
Vaginitis	20 (15)	12 (7)	3 (3)	5 (5)

*Figures in parentheses are the number of patients treated with the vitamin stilbestrol combination.

bined preparation. Table 1 shows the symptoms of this group, their response to therapy, and the response in relation to the drug administered. The frequency of nausea is indicated in chart 1.

*The vitamin stilbestrol combination was furnished through the courtesy of Dr. H. E. Dubin, of the U. S. Vitamin Corporation, New York, N. Y.

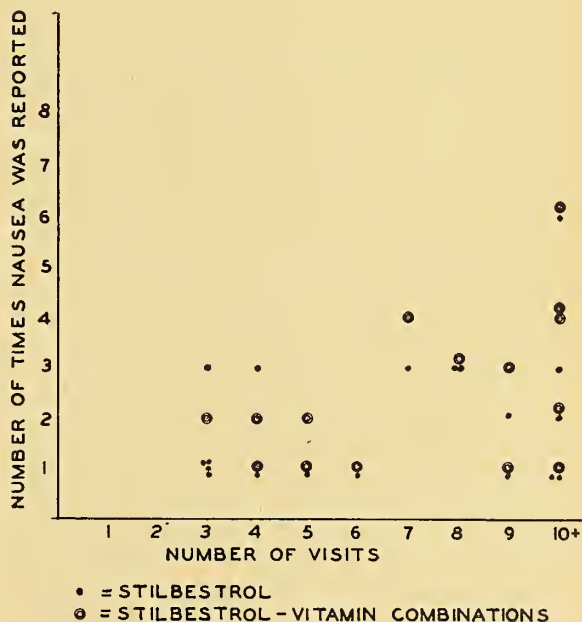
In a similar manner, 22 patients with ovarian deficiency resulting from surgical procedures have been placed on the same regime, 100 receiving stilbestrol, 12 stilbestrol and vitamins. The symptoms

TABLE 2
SURGICAL MENOPAUSAL SYNDROME

Symptom	No. Patients	Complete Relief	Partial Relief	No Relief
Nervousness	22 (13)*	6 (5)	15 (8)	1 (1)
Hot flushes	20 (11)	14 (8)	6 (3)	0
Dizziness	18 (11)	11 (7)	5 (2)	2 (2)
Insomnia	20 (12)	14 (8)	4 (3)	2 (1)
Fatigue	21 (13)	10 (5)	9 (7)	2 (1)
Depression	19 (11)	14 (8)	5 (3)	0
Headache	21 (12)	12 (8)	7 (3)	2 (1)
Muscle and joint pain....	20 (12)	6 (1)	9 (4)	5 (3)
Mastalgia	8 (5)	3 (1)	2 (1)	3 (3)
Nausea	14 (9)	9 (6)	3 (2)	2 (1)
Vaginitis	12 (9)	10 (7)	1 (1)	1 (1)

*Figures in parentheses are the number of patients treated with the vitamin stilbestrol combination.

noted in these cases, the response to therapy and the response in relation to the



drug are shown in table 2. Chart 1 indicates the occurrence of nausea.

DISCUSSION

The estrogenic value of stilbestrol in the treatment of hypo-ovarianism, as previously reported, has been confirmed by this series. The small percentage of patients receiving little or no relief attests the therapeutic value of this drug. In addition to the relief of specific symp-

toms, these patients frequently voluntarily reported a sense of well being and general physical improvement.

The severe toxic manifestations attributed to stilbestrol by some authors include hepatitis, nephritis and dermatitis. Of the entire group of patients treated in this clinic with stilbestrol, no instance of hepatitis or nephritis has been noted. However, two patients noted a transient dermatitis, of an extremely mild type, which did not require special therapy. In one woman only was discontinuance of stilbestrol necessary.

The emphasis placed upon nausea as a toxic manifestation of stilbestrol has deterred the acceptance of this drug for general use. The frequency of nausea has been variously reported, and in previous reports from this clinic¹⁻⁴ the percentage observed was 15 per cent and 60 per cent.

No adequate explanation of the etiology of this nausea has been offered, though many believe that it is a central rather than a local phenomenon. While the possibility exists that nausea is a minor manifestation of diethyl stilbestrol's toxicity, observations over a period of 20 months do not confirm this suspicion. The statement that 50 per cent of the patients treated with stilbestrol report nausea is misleading. Thirty-eight per cent of patients in this series reported nausea while under treatment; however, closer analysis of this figure reveals that 14 patients reported nausea only once during the treatment, and 6 patients reported nausea twice; 13 patients reported nausea three or more times. Therefore, the real importance of nausea as a toxic manifestation of the drug is far less than the reported incidence would indicate. As a matter of fact, many patients volunteer the information that the nausea is inconsequential when relief of other symptoms becomes noticeable, and prefer to take the drug in spite of this unpleasant reaction.

Nevertheless, nausea remains as an undesirable effect of stilbestrol administra-

tion, and relief of this symptom has occasioned variations in treatment. Funk⁵ has shown by repeated experiment that stilbestrol is more toxic in vitamin deficient animals. This finding suggested that the nausea reported so frequently might be associated with avitaminosis of varying degrees. For this reason and because of the impression of colleagues at the Charity Hospital in New Orleans that the nausea accompanying the administration of sulfonamide drugs has been lessened by giving vitamin preparations concomitantly, and the idea that nausea occasioned by stilbestrol could be lessened in a similar manner, the stilbestrol vitamin combination was administered. The therapeutic effect of the stilbestrol in such combinations, as mentioned above, has not been increased or lessened. No diminution in the occurrence of nausea has been found, nor do patients improve in this regard when changed from the stilbestrol to the stilbestrol vitamin therapy.

CONCLUSIONS

1. This series indicates the efficacy and the estrogenic potency of stilbestrol in patients with ovarian failure.
2. Nausea was present in 57 per cent of these patients, but was reported on more than two occasions in only 23 per cent.
3. The addition of vitamin complexes to stilbestrol does not prevent the occurrence of nausea.

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ANLAGEN AND "REST" TUMORS OF THE LUNG*

THEIR PROTEAN HISTOLOGIC PATTERNS IN BRONCHIOGENIC NEOPLASIA

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It is unnecessary to stress the greatly intensified interest stimulated in the study of primary pulmonary tumors in recent years. The achievement of bronchoscopy and accompanying biopsy and the advances in radiology, including bronchial visualization, planography and tomography, have precipitated the modern interventions of bronchial and lung surgery. These advances have furnished some rays of hope wherein previously only dismal darkness prevailed. Such bright outlooks are especially presented wherein careful study, discernment, proper discrimination and judicious choice of procedure, have prevailed. One is impressed with the very general discussions voicing conservatism in diagnosis and intervention in connection with the paper of Goldman and Stephens¹ presented at a recent meeting of the American Association for Thoracic Surgery.

The nature and extent of the existent tumor, as well as the associated lung pathology, form important basic guides in the selective procedures of bronchial and pulmonary surgery. Unfortunately such accurate information is often not procurable. From the standpoint of pathology, while cumulative observations and study have amplified our knowledge, it is *prima facie* evident that progress in this field has not kept pace with the rapidity of achievement in surgical, bronchoscopic and radiologic advancements. As a matter of fact, the interpretations of the pathologist have in some instances actually constituted a detri-

ment to the clinician, since recognized errors in pathologic diagnoses of lung tumors, even regarding their malignancy, have been all too frequent. At times, of course, the obtaining of an irrelevant or crushed biopsy specimen may mislead. Even under such circumstances, however, ventured or "conjectural" diagnoses should not be rendered.

Primary tumors of the lung can be regarded as an old subject, the first vague description dating back to Boyle in 1810.² Scattered subsequent reports received but little attention. No great interest became manifested in this country until the basic work of Chevalier Jackson in bronchoscopy and that of Evarts Graham and Churchill in lung surgery. Since that time there have appeared numerous publications dealing with various phases of this subject including the pathology. We might mention among many, those of Wessler and Rabin,³ Brunn,⁴ Jackson and Konzelmann,⁵ Kernan,⁶ Moersch and Bowing,⁷ Clerf and Crawford,⁸ Pancoast,⁹ Zamora and Schuster,¹⁰ Goldman and Stephens,¹ Womack and Graham,¹¹ and from our immediate locality, the activities of Ochsner^{12,13} and his associates.

PATHOLOGY

As regards the pathology of primary carcinoma of the lung, due credit must be given to the various reports of Fried¹⁴ which he has summarized in a splendid monograph published in 1932. While restricted to primary carcinoma his careful study is representative of thorough pathologic investigation. His deduction that the genetic basal cell of the adult bronchial mucosa forms the source of diverse cell morphology is logical and convincing. Brunn's classification of polypoid bronchial tumors is both comprehensive and encompassing. The publication of Womack and Graham has set forth in representative and basic form the embryologic phase of certain primary lung tumors. It is especially in this particular field that we have had occasion to be interested. Furthermore, we feel this aspect has a more tangible connection and far reaching significance than one might at first be inclined to appreciate.

*Read before the Orleans Parish Medical Society, July 14, 1941.

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Regarding the general subject of primary lung tumors, Goldman and Stephens have aptly suggested three eras in the process of study and achievement: (1) First period, the postmortem recognition (1882-1932); (2) second period, that of clinical recognition and treatment (1932-1938); (3) third period, overlapping that of the second period and extending to the present and into the future, that is, the period of development of rational therapy, based upon new knowledge of the natural and therapeutic life history of such tumors.

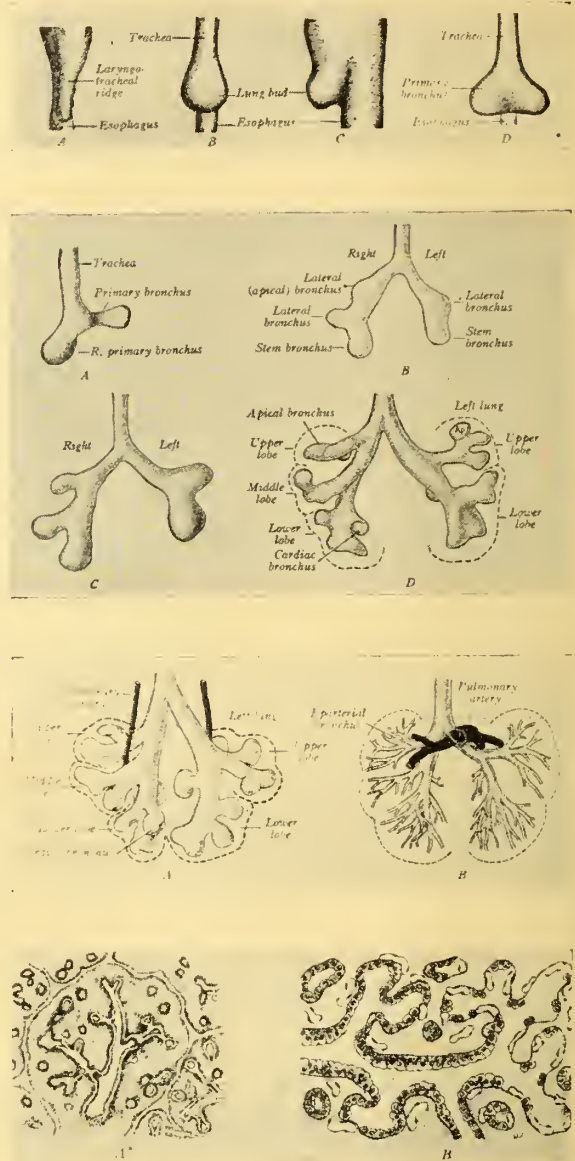
It is our belief that any observations which may throw additional light upon the proper interpretation and comprehension of the pathologic nature of such tumors, should be reported. We have, accordingly ventured to submit our analysis of certain pathologic material and embryologic sections relevant to the subject projected.

Our interest in this field was primarily aroused several years ago by the observation of two instances of pulmonary fetal tumors that manifested definite evidences of growth during intra-uterine life. The autopsies revealed neoplasia involving a considerable portion of lung structure. Furthermore, we are at present reviewing the histology of primary tumors of the lung available at the Charty Hospital. Thus far we have encountered two that are of embryonal or anlage origin.

Through the courtesy of H. Colvin, we have studied two additional cases. In one of these a biopsy section was removed through the bronchoscope in 1935 and a subsequent similar specimen from the same case in 1939. More recently, he has given us sections from biopsy and surgical removal of a polypoid tumor of the bronchus. All of these we have classified as anlage or rest tumors, most of which represent benign neoplasia.

A study of the embryologic development of the lung confronts us at once with the complexity of its eventual formation. The observations of Arey¹⁵ repletely describe

this intricate process. His diagrams* illustrated herein as 1, 2 and 3 are self explanatory of both the intimacy of adjacent structures and of the enormity of "budding" and branching ramifications that ensue. Diagram 4 demonstrates the microscopic aspect of the embryonic bronchial tube and



alveolar formations. It is to be noted in connection with such development of tubular structure that both endodermal and

*The authors wish to acknowledge, with thanks, permission to use diagrams from Arey, L. B., *Developmental Anatomy*, W. B. Saunders Company, Philadelphia, 1936.

mesodermal factors become greatly involved. Furthermore, the juxtadevelopmental pharyngo-esophageal tubes add likely aberrant possibilities.

PROTEAN HISTOLOGY OF OUR MATERIAL

The histologic patterns manifested in the several cases enumerated by us varied to a great extent. In the instance of one of the infants the tumor had replaced an entire lower lobe. The histology represented that of a very early fetal lung. It consisted of irregular and branching tubuli lined by columnar epithelium. In many of the tubules there were present papillary or "spur-like" inversions. The stroma was sparse and formed a delicate network between the immature branched bronchi or tubules. In the other infant, this arrangement consisted partly of a hemangioma cavernosa type and partly of miniature alveoli filled with cells conforming to those originally designated "fetal cells." In the two cases wherein bronchoscopic specimens were obtained the following patterns were seen: A section of one of these removed in 1935 was distinctly angiomatous, being comprised of multiple uniformly sized spaces filled with red blood corpuscles. A later biopsy in 1939 showed similarly sized alveoli which now contained numerous small cells with densely stained solid nuclei, so called fetal-cell types. The specimen from the second case showed a more distinctly mixed mesenchymal and endodermal character. Alveoli with cells having a pale staining cytoplasm and light staining nuclei were seen. In some of these were contained concretory masses somewhat simulating corpora amylacea. The interalveolar structure was proportionately large, forming dense bands. Many of the latter were hyalinized and in some areas early formation of cartilage was noted. In two other occurrences obtained from post-mortem material, one revealed the cells arranged in cords and forming tubules having certain aspects of liver structure. The other presented a truly mixed type of both mesenchymal and epithelial structures.

COMMENT

In order to stress the validity of lung development as a likely factor of analogous

or rest tumor origin we wish to cite from Gruenfeld and Gray's article.¹⁶ "The occurrence of developmental anomalies in the lung is favored by the phylogenetic newness of this organ and the enormous growth it must undergo in the embryo before its function is achieved. Beginning with the embryonic vestiges, two different pulmonary anlagen can be recognized: an epithelial one which plays the main role during the formative period of the organ and a mesenchymal one, the importance of which increases when the functional stage is approaching . . . The bronchial tree forms through arborization and down growth." As regards the lining epithelium, misplaced squamous type has been found in the trachea. Furthermore, Rector and Connerly,¹⁷ at autopsy of 1,000 infants, found 118 demonstrations of aberrant mucosal areas, 42 which were of columnar ciliated type and the remainder of gastric mucosal nature.

It also appears pertinent at this time to recall Conheim's classical conception of the formation of certain tumors. In brief he asserted "tumors may develop from masses of simple or complex tissues misplaced during embryonal development, or they may arise from small groups of superfluous cells which have retained their embryonal characters even though not necessarily misplaced." Naturally the more intricately involved is an organ's development, the more likely are such aberrations and later potential outgrowth or neoplasia to occur. Thus, for example, we readily concede the seminoma, embryoma, chorioepithelioma and teratoma of the testis as of embryonal origin; likewise a similar view is taken for the arrhenoblastoma, disgerminoma, granulosa cell and Brenner's tumor of the ovary or again, for the mixed tumors of the parotid. Contrariwise, for the breast, uterus or gastrointestinal tract and certain other organs we ordinarily recognize their origin from adult cell aberrations.

We concur in the opinion of Womack and Graham that many of the bronchial adenomata are of embryonic elemental origin and are often benign. This is of much impor-

tance because of their relative frequency. Goldman and Stephens¹ cite Kramer and Som as stating that they comprise 6 per cent of all bronchial tumors and Churchill as finding 10 per cent incidence and representing 25 per cent of all resectable tumors.

Aside from a failure of development of bronchial bud anlagen as a source of neoplasia, our observations thus far upon the rather promiscuous diffusion of mucous glands in certain embryonal bronchi have led us to believe they likewise may represent origin rests in some instances. Added observations in our studies are necessary to warrant a more definite opinion in this regard.

It is for the emphasis of the origin and histogenesis that we are suggesting the appellation "anlagen and rest tumors" of the lung instead of the term mixed tumors as primarily applied by Womack and Graham. Truly, some of these tumors are definitely "mixed tumors," that is, comprised of both endodermal and mesodermal evidences. On the other hand, the terms "anlagen and rest tumors" of the lung encompass those basically of embryonal origin whether they are of a mixed dermal or undermal character. It likewise may serve the useful purpose of emphasizing the fetal or embryonic connection. To some extent, it may carry a benign implication, thus serving to make those of us in pathology more cautious of ascribing malignancy too quickly to certain misleading members of this group.

While our observations upon certain primary lung tumors are confirmatory and, we hope, augmentative of those of Womack and Graham, there is no intimation that all the varied classifications heretofore set forth should be completely modified. We do feel, however, that the embryonic basis should be asserted by proper terminology, where indicated, with the added specification of malignancy or non-malignancy, accordingly.

CONCLUSION

As recently expressed by Brunn, we are of the firm conviction that the chaos existing in lung tumor diagnosis, together with

the great importance of this subject, warrants the establishment or rejuvenation, if existing, of a bureau for primary lung tumors with cooperative exchange. Such a procedure should be constructive of better organized comprehension and classification.

It is our intention to publish a detailed report of the aspects of pathology of this material at a future time.

DISCUSSION

Dr. Marie Dees-Mattingly (New Orleans): I am afraid that I can add nothing from the pathologist's standpoint, but I would like to take this occasion to point out some relations of embryology to pathology, especially in the tumors discussed by Dr. Harris.

As Dr. Harris has shown in the first slide, the primordium of the lung appears about three and a half weeks, expressing itself as a ventro-medial evagination or thickening of the esophagus at the caudal end of the pharynx. The first slide further shows the thickening separated into a ventral respiratory part and a dorsal digestive part by a shelf of mesoderm that grows in caudo-cranially between the two. Eventually the laryngo-tracheal tube is split away from the esophagus. As the primitive respiratory tube enlarges or elongates the greater bulk will form trachea. The trachea and practically all the larynx are lined with stratified columnar ciliated epithelium; whereas the esophagus and the greater part of the pharynx above are lined with stratified squamous, mucosal variety.

As we trace the development of the laryngo-tracheal bud we find that about the fourth week the distal end of the tube enlarges and then becomes bilobed, representing the primary lung buds. Subsequently the primary lung buds divide and by the fifth week three branches have formed on the right and two on the left. These branches repeatedly divide, as Doctor Harris has shown in later slides, each main secondary branch ultimately resolving itself into a lobe of the lung,—three lobes on the right and two on the left. You will notice in the slide that there is an absence of one lobe on the left. The explanation of this absence of the extra lobe on the left is variously explained. Be that as it may, the apical bronchus or eparterial bronchus on the right is absent on the left. Notice, however, that this absent lobe is represented in the upper left lobe of the lung by a bronchial branch. I mention this simply to show that even in normal development we have a suppression of tissue of the lung. If then in normal development there is suppression of tissue we can readily see that, due to aberrant factors there could be a suppression of tissue in any one of the divisions shown in the third slide. Supposing that the suppressed cells of the bronchial branch become active, since they have missed their cue to form normal lung tissue, they

would have the possibility of forming an abnormal mass which would be composed of either one or both of the germ layers (endoderm or mesoderm) mentioned by Doctor Harris. Furthermore, aberrations in development might be expressed as inhibition or excess of lung tissue formation. If inhibition occurs early, say before the trachea bifurcates to form the primary lung buds, there would be a complete agenesis of the lung. If a supernumerary bronchus forms while the surrounding mesoderm is still capable of lobe demarcation, a supernumerary lobe of the lung would be formed. We see then that many variations in the formation of the bronchial tree are possible.

Turning our attention now to the epithelium lining these divisions, we find that when the laryngo-tracheal tube is separated from the esophagus that the esophagus is lined with a thin stratified columnar epithelium, possibly ciliated in patches. As histogenesis of the esophagus progresses the epithelium becomes more stratified and definitely ciliated in places. These cilia along with the superficial cells are desquamated before birth or shortly after birth, the epithelium becoming stratified squamous. Only recently Rector and Connerly reported a thousand autopsied infants in which forty-two showed stratified columnar ciliated epithelium in various parts of the esophagus. Quite definitely they feel that if all esophagi had been studied in serial sections there would have been a greater percentage of this ciliated epithelium. Some authors give as high as seventy per cent. The question as to why this epithelium retains cilia is simply an aberration in development which might be due to an arrest in development at the time the superficial cells are sloughed. It is also possible that when the respiratory bud separated from the esophagus the epithelial potentialities of the esophagus were carried over to the ventral tube epithelium and thus patches of stratified squamous epithelium might appear in the bronchial tree. You will recall that I mentioned in the first part of this discussion that the epithelial lining of the pharynx is largely stratified squamous and that the laryngo-tracheal tube and esophagus have the same origin from the caudal end of the pharynx. You can see then that cell rests of the pharyngeal lining might be drawn down into the bronchial tree accounting for some of the epithelial irregularities in the lung.

Dr. Alton Ochsner (New Orleans): I hope no one will leave the hall tonight with the idea that these tumors are as common as carcinomata. We owe a great deal to Dr. Harris and Dr. Schattenberg for calling our attention to these tumors as they are very interesting but we must not forget whereas these tumors occur as frequently as mentioned, that bronchiogenic carcinoma occurs much more frequently, as much as eight or ten times. I would not like to leave the impression that most tumors of the lung are benign, because most are

malignant. Whether benign or not they are malignant potentially from a clinical standpoint and I think all should be considered malignant because frequently one can not determine, as shown in the slides, from biopsy whether it is malignant or not. As Graham described these tumors, they should frequently be considered as iceberg tumors. As shown in the slides, a great portion are frequently extra-bronchial. This is the reason why bronchoscopic extirpation of these tumors should not be done. I am convinced from experience that patients should be subjected to lobectomy or pneumonectomy.

Most of these occur in women, about 70 per cent, and principally in younger persons—80 per cent in persons younger than forty years of age. A tumor in a young female is more likely to be of this type whereas a tumor in a male is more likely to be carcinoma. Although Brown and his associates have taken a rather conservative attitude in the treatment of these tumors, I think most thoracic surgeons are agreed that these tumors, although at times appearing benign, do have malignant potentialities and they should be considered at least potentially malignant.

Recently I had a patient, a boy who for six years had had an atelectasis with recurrent bouts of fever. Bronchoscopy showed a relatively benign tumor, producing complete atelectasis. Pneumonectomy was successfully performed. These patients can go for long periods of time with relatively few signs except for those of obstruction but the malignant potentialities must not be forgotten.

Dr. Wm. H. Harris (in closing): There is very little for me to add. It is to be appreciated that we are presenting a specific topic which did not include the broad aspect of primary carcinoma of the lung. Dr. Ochsner is, of course, correct in stating that proper emphasis should be placed on the frequency of bronchiogenic carcinoma and we trust we did not imply to the contrary. Our purpose was to present embryonal types of tumors and to point out that they are frequently of benign character. Naturally they may occasionally serve as originators of malignant growths. We learn from the publications of others that for the simple types, many of such patients have lived on thus far, from ten to fourteen years by quite simple methods of surgery.

It is in order to emphasize the potentialities of these types of tumors from the obstructive standpoint such as the dangers of infections, atelectasis, and so-called "drowned lung." We understand that much relief, even permanent, can be given in these cases through simple bronchoscopic surgery.

We regard the proper pathologic interpretation of these tumors as of much importance to the surgeon. Their malignant or non-malignant nature has necessarily a relation both to outlook and procedure.

Our only intention herein is to emphasize certain data that we believe to be constructive in the consideration of primary lung tumors.

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A REPORT ON RECENTLY OBSERVED CASES OF WEIL'S DISEASE*

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AND

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During the months of August and September, 1941, a diagnosis of Weil's disease was made on four white male patients on the Tulane Medical Service at Charity Hospital of Louisiana. Information derived

from the August 1941 Public Health Reports¹⁰ shows that a total of 98 cases have been observed in Puerto Rico, and in 14 states and the District of Columbia, in the United States. A subsequent report in the same Journal¹⁴ includes four cases from Louisiana for the years 1939-40. It is interesting to note that in 1905, Stimson observed an organism which he called *Spirochaeta interrogans* in the tissue of a patient dying during an outbreak of yellow fever in New Orleans. This is probably the first case of Weil's disease in this country, although it was not recognized as such.

Wadsworth² first reported a case of Weil's disease in this country in 1922. The disease is relatively common in Europe and Japan, and Ashe¹ quotes Walch Sargdrager³ who listed 46 countries in which the disease had been described.

ETIOLOGY

Weil's disease is a specific infection caused by the *Leptospira icterohemorrhagiae* characterized by sudden onset with prostration, severe aching muscular pain, high fever, and in many cases there is a subsequent development of jaundice, bronchopneumonia, evidence of renal insufficiency, and a hemorrhagic diathesis. The disease was first described by Weil⁴ in 1886, who differentiated it from other types of epidemic jaundice. Inada,⁵ in 1916, described a spirochete as the causative organism, and Noguchi⁶ classified and named the organism the *Leptospira icterohemorrhagiae*.

The common vector is the adult gray rat, and it has been reported⁷ that the excreta of more than 10 per cent of these animals contain the *Leptospira icterohemorrhagiae*. It is believed that the principal mode of infection is through contact with contaminated water in wet rat infested places, since it has been shown⁸ that the leptospira can live for a period of longer than three weeks in stagnant water which is neutral or slightly alkaline.

Recent reports⁹ have contained excellent descriptions of the clinical features of the disease as they have appeared in the mild and severe American cases. The charac-

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teristic features of the disease and the methods of diagnosis are presented in the following reports of our cases:

CASE NO. 1

J. P., a 28 year old white male painter, who recalled no definite exposure to rat excreta, noted the very sudden onset of shaking chills with fever to 104° and a slight diarrhea, burning sensation in the eyes, and a slight dry cough but no appreciable myalgia. He was admitted to the hospital on the third day of his illness, having had daily chills and fever. On admission, there were no positive physical findings; the pulse was 116, respirations 20, and blood pressure 128/68. White blood cells numbered 12,000 with 76 per cent polys, and the urine was negative. There was no conspicuous change in the blood or urinary findings during his stay in the hospital. For seven days to the tenth day of his illness, the patient was very toxic and had daily rigors and a fever to 104°. Repeated blood cultures, routine agglutinations and examinations of smears for malaria were negative. On the eleventh day of his illness a sharp drop of temperature to normal occurred, and a slight but definite icteric tinge was noted on the sclerae. Except for a single elevation of the temperature to 102° on the fourteenth day of his illness, subsequent convalescence was uneventful. Bilirubin was present in the urine for several days after jaundice was noted. The patient was discharged as completely recovered on the twentieth day after onset. Serum sent to the National Institute of Health in Bethesda, Maryland, on the eighteenth day, agglutinated *Leptospira icterohemorrhagiae* to a titer of 1:100,000.

CASE NO. 2

H. G., a 34 year old warehouse workman, became suddenly ill with high fever, chills, and headache on August 18, 1941. He began to expectorate blood-tinged sputum within a few hours and was treated by a physician for pneumonia, being given sulfathiazole. This medication was discontinued on the fifth day of his illness because of the appearance of marked jaundice. During this time there were repeated chills, fever to 104°, and the patient was disoriented at times. Urine was noted to be very dark brown, but at no time was oliguria observed. The patient was admitted to the hospital on the ninth day, when his pulse was 120, respirations 24, and blood pressure 130/20-0. Save for a deep icterus and a barely palpable tender liver, there were no positive physical findings on admission. The white blood cells numbered 12,400 with 85 per cent polys. The urine showed four plus bile, and urobilinogen to a dilution of 1:10; the icterus index was 333 and the blood urea nitrogen was 80. For four weeks in the hospital the patient ran a continuously febrile course with chills and fever to 104°. Repeated blood cultures and routine agglutinations gave negative results. Repeated

small transfusions were given supportively, and near the middle of the fourth week of illness, 250 c. c. of blood from a patient who had recovered from Weil's disease two years ago, were given. No dramatic results followed, but the patient's temperature gradually fell until near the end of the sixth week, he became afebrile and definitely convalescent. On the twenty-third day of illness, the patient's serum agglutinated *Leptospira icterohemorrhagiae* to 1:100,000, and on the thirty-fourth day, to 1:1,000,000.

CASE NO. 3

O. D., a 39 year old white male dairy hand, noted the sudden onset of his illness on September 14, 1941, associated with severe pains in the muscles of his forearms, legs, and back. Later in the day, a shaking chill was experienced and his temperature was found to be 101°. Shortly thereafter, he began to vomit greenish material, and by evening, he had begun to experience a dry hacking cough. This course continued for five days, during which time much smaller amounts of urine than normally were passed, and the patient became progressively more exhausted with chills and high fever. He was admitted on the fifth day of his illness when a definite icterus was observed. Physical examination was otherwise negative save for a tender enlarged palpable liver. The white count was 15,000 with 97 per cent polys, the urine showed three plus albumin, numerous red blood cells, many granular casts, and four plus bile. Blood urea nitrogen was 16.1, glucose 143, and the icterus index was 110. A chest film revealed no abnormalities. While in the hospital, the patient became steadily more toxic, his temperature went higher and he voided very little urine. Death occurred on the ninth day of his illness, when his temperature was 103°. No urine was passed in spite of heroic measures to produce diuresis.

Autopsy was obtained which revealed among the essential findings, jaundice, petechial areas over the chest and ecchymotic areas over the parietal peritoneum. The liver was enlarged. Microscopic sections of the liver showed considerable disorganization of the arrangement of the liver cells which occurred in groups of two or three cells, rather than in continuous cords. These groups were interspersed with clumps of lymphocytes. The kidney sections showed a diffuse infiltration of lymphocytes between the glomeruli. The latter were small and showed large capsular spaces. Many endothelial lined spaces filled with blood were observed in the medulla and to a lesser extent in the cortex. Levaditi stains of the kidney showed many leptospira. Blood taken from the patient on the ninth day of illness agglutinated *Leptospira icterohemorrhagiae* in a titer of 1-500.

CASE NO. 4

E. L., a 46 year old farmer, became suddenly ill on August 25, 1941, with a severe shaking chill and high fever. Daily chills, fever, a cough productive

of mucoid sputum, profuse perspiration, and epigastric distress continued until the fifth day of illness, when the patient was admitted to the hospital. At this time, the temperature was 105°, pulse 92, respirations 26, and blood pressure was 122/68. The conjunctivae were injected, there were numerous subcrepitant and crepitant rales throughout both lung fields. The liver was palpably enlarged, but the spleen could not be felt. White blood cells numbered 8,100 with 90 per cent polys; the urine was negative, and the blood urea nitrogen was 30. A chest film taken soon after admis-

sion showed a patchy bronchopneumonia. Sulfathiazole had no effect on the pyrexia, which continued around 101° to 102° for three weeks. No definite chills occurred but on the ninth day of illness, the sclerae were icteric tinged and the icterus index was 157. The patient, after being ill for eighteen days, began gradually to improve and became afebrile on the eighteenth day and was discharged on the twenty-fourth day after onset, as afebrile and apparently well. Serum on the fifteenth day agglutinated *Leptospira icterohemorrhagiae* to 1:1,000, and a week later to 1:10,000.

SUMMARY OF IMPORTANT FINDINGS

	Case #1	Case #2	Case #3	Case #4
Age	28 w. m.	34 w. m.	39 w. m.	46 w. m.
Occupation	Painter	Warehouse worker	Dairyman	Farmer
Onset	sudden, chills	sudden, chills	sudden, chills	sudden, chills
Onset jaundice	11th day	5th day	5th day	9th day
Liver	not enlarged	enlarged, +	enlarged, ++	enlarged, +
Conjunctivitis	yes	no	no	yes
Respiratory sympt.	no	yes	no	yes
Urine	Bile+	Bile, ++++ Urobilinog., +	Bile, ++++ Casts, ++	Bile, ++ Urobilinogen, +
W. B. C.	12,000 76% PMN	12,000 85% PMN.	15,000 97% PMN.	8000 90% PMN.
B. U. N.	19	80	?(Anuria)	30
Ict. index.	39	333	110	157
Diagnosis (titer)	1-100,000 (18th)	1-100,000 (23rd) 1-1,000,000 (34th)	1-500 (9th) Autopsy*	1-1000 (5th) 1-10,000 (22nd)

**Leptospira* in kidney sections (Levaditi stain).

COMMENT

All four cases showed a sudden onset with fever, prostration and muscular aching pains. All had definite chills. All four cases showed jaundice, varying in onset from the fifth to eleventh day of illness. A leukocytosis not exceeding 15,000 was characteristic. Case 3 developed marked renal insufficiency with oliguria and died. Case 2 showed nitrogenous retention with a blood urea nitrogen of 80 but recovered. The other two cases showed minimal urinary findings except for moderate bile and urobilinogen. Hemorrhages into the skin, as a purpuric rash or as large ecchymoses which have been described as being characteristic in this condition and present in 18 per cent of Davidson and Smith's¹¹ cases, were noted in case 3 only.

Dark field examination of the blood of patients number 2, 3, and 4 were made on

the seventeenth, fifth, and ninth day of illness respectively, and repeated on the following day, but no characteristic leptospiras were observed. We wish to emphasize here the important work of Schultze,¹² who demonstrated the ease with which the inexperienced investigator may be misled in his interpretation by pseudo-spirochetes observed in dark field preparations of blood.

Blood, urine, and spinal fluid from case 2 were injected into respective guinea pigs, but we were unable to recover the organisms. Attempts to recover the organism from guinea pig inoculation of blood and urine from case 4 were also unsuccessful. The explanation for this failure may be the high agglutination of the patient's blood at the time the inoculations were made. Davidson and Smith¹¹ have pointed out that the presence of leptospira in the blood is

not compatible with the presence of antibodies.

An interesting commentary on case number 3 and 4 is the fact that these patients were neighbors and there were jaundiced cattle in the immediate vicinity of their homes. The State veterinarian¹³ was of the opinion that these cattle were infected with *Anaplasmodium marginale*. The serum of one of these cattle failed to agglutinate the *Leptospira icterohemorrhagiae*, and *Leptospira canicola*, and guinea pig inoculations with blood from the same cow proved negative. The owner of the cow and one of his employees presented a history of recent severe illness of 10 days' duration and of sudden onset associated with fever, prostration, smoky urine and questionable jaundice. Blood dark field examination, guinea pig inoculations and agglutinations however, proved negative for *Leptospira icterohemorrhagiae*.

SUMMARY

1. Four proved cases* of Weil's disease have occurred near New Orleans in August and September, 1941.

2. The case histories of these patients and the case history and autopsy findings of a fourth case are appended.

We wish to express our appreciation to Dr. C. L. Larson of the National Institute of Health and to Dr. J. Ziskind and Dr. G. von Langermann of the Department of Pathology and Laboratory of Clinical Medicine respectively, of Tulane University School of Medicine.

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*Since this report was written two additional specifically proved cases of Weil's disease have occurred at Charity Hospital. This makes a total of six cases for the period August-November, 1941, inclusive.

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DISCUSSION

Dr. Gordon McHardy (New Orleans): I would like to ask Dr. Wilen if he has an idea of the mode of infection in these individuals. The only cases I have seen were patients who lived in the unhygienic surroundings of what are termed "flop houses," but none were bitten by rats nor to their knowledge by any insects.

Dr. C. J. Tripoli (New Orleans): This contribution of Drs. Wilen, Snively and Bruno deserves considerable attention, particularly here in New Orleans.

For the past many years these cases of high fever and jaundice of undetermined origin have presented much difficulty in diagnosis. The differentiation of yellow fever, Weil's disease and acute infectious jaundice has been a most formidable problem in the past. We, in this locality, have never been able to demonstrate the etiologic factor of Weil's disease in either the blood or urine in any one case.

The opportunity we now have of agglutinating the blood of suspected cases early in the disease is probably our most valuable diagnostic and differential diagnostic aid.

The authors have demonstrated most vividly that Weil's disease in this community is more frequent than we are led to believe.

Dr. Carl J. Wilen (In closing): In answer to Dr. McHardy, I will state that the farmer and dairyman both lived in areas constantly exposed to rats. The other two patients, a painter and a warehouse workman, denied contact as far as exposure to rats was concerned.

WEIL'S DISEASE (SPIROCHETAL JAUNDICE)

REPORT OF A CASE*

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Weil's disease, or spirochetel jaundice, is an acute infection caused by the *Spirocheta icterohemorrhagiae* (*Leptospira ic-*

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terohemorrhagiae of Noguchi) and characterized by a sudden onset with fever, muscular pains especially in the calf of the legs, headache, and great prostration. Jaundice, which develops in about half the cases, appears about the fourth day and is of varying severity. With its appearance, the liver usually is enlarged and tender. The spleen may be palpable. Epistaxis and bleeding from the mucous surfaces are common. A meningeal form is also recognized, characterized by signs of meningeal irritation such as stiffness of the neck, headache, and Kernig's sign.

The urine contains bile, albumin and casts, though there is believed to be no permanent kidney injury.

The causative organism is present in the blood up to the fifth or seventh day and in the urine after the tenth day and usually persists throughout the febrile period and perhaps longer.

The fever continues high for ten to fourteen days then falls to normal, accompanied by subsidence of other symptoms. Recurrences of the fever, unaccompanied by other symptoms, is common in one-fourth to one-third of the patients, running an intermittent course for a variable period of time. Convalescence is characterized by depression and is usually very protracted.

The diagnosis is made by demonstrating the spirochetes which occur in the blood the first five to seven days. They may be seen under the microscope or obtained in pure culture by inoculating blood intraperitoneally before the tenth day, or urine after the tenth day, into guinea pigs.

The incubation period in man is from seven to ten days. The mortality rate varies; the Japanese case mortality of 37 per cent is much higher than among the European soldiers in the World War I, which did not exceed 2 to 5 per cent.

Weil first described the disease in 1886, which he thought might be merely an atypical form of some known disease such as typhoid. Rynkichi Inada and Yutaka Ido discovered the causative organism in 1914.¹ The reports of sporadic and epidemic cases are quite numerous in Euro-

pean and Asiatic literature, but despite the presence of infected rats, few cases have been recorded in the United States.

Spirochetal jaundice has been known to occur for a long time among troops, sewer workers, miners, agricultural workers in wet soil, such as rice planters. Quite a large epidemic occurred in the last World War on both sides of the Rhine.² The disease in man is associated with moist soil and moderate temperature. It prevails especially in summer and autumn.

Spirochetal jaundice is a disease primarily of rats, secondarily of man.³ About 10 per cent of all the wild rats examined harbor the disease. The spirochetes live in the kidney and are excreted in the urine. Noguchi found the spirochete in rats about the Bronx. Ten per cent of the rats of Nashville and Washington were found to be infected. This, therefore, reveals a latent danger to which we have all been exposed. Just how the disease is transmitted from rat to rat and from rat to man is not known, but as the spirochete is excreted in the urine, infection may take place through contaminated soil, water and food by way of the mouth or skin.⁴ Noguchi found the organism to live from three to seven days in moist soil; it soon dies when dried.

The term Weil's disease, or spirochetal jaundice, should not be confused with other types of infectious jaundice. Outbreaks of infectious jaundice in the United States in which the spirochete was not found, have been studied especially by Blumer,⁵ although the spirochete may have been missed.

With the advances of bacteriology and laboratory procedures, conditions formerly known as infectious jaundice are recognized now as due to malaria, typhoid, relapsing fever, yellow fever and streptococcal infections.

Nichols⁶ found evidence of paratyphoid infection in jaundiced American troops from Europe. It is apparent that the last word has not been said concerning infectious jaundice of unknown etiology.

CASE REPORT

This is the case of D. C. B., a white male, aged 23, a student, who was admitted to the Louisiana

State University Hospital, September 13, 1941, complaining of high fever, generalized aching and chilly sensations. Onset dates back three days previous, on night of Saturday, September 13, when he began to have headache, generalized aching and chilly sensations and high fever. He was of the opinion that he had influenza. Took "influenza capsules" and castor oil. Condition did not improve so he reported to the hospital for admission.

No history of malaria, but gave the history of ten days before onset (September 3) going to Crowley, where he was bitten by a large number of mosquitoes, noted also fleas on his body on night of the third and fifth while staying in the hotel. Waded for three days in the rice fields, at times eating bits of rice grain.

On admission patient was poorly nourished and appeared to be acutely ill. Temperature 104° F., pulse 138, respiration 2, blood pressure 124/70; pharynx slightly reddened, chest normal to auscultation. Abdomen was negative, reflexes normal.

Headache and general malaise became progressively worse, especially with severe pain in the calf of the legs. An icteric tinge appeared the day after admission, which became progressively worse, accompanied by itching.

The temperature followed a continued course, ranging from 101° F. to 104° F. during which time the jaundice became very intense, to a bronze discoloration of the skin. Icteric index was recorded at 78.6. Slight tenderness over the liver was noted at this time.

Blood picture revealed a mild leukocytosis with slight increase in the polymorphonuclear leukocytes. The red blood count revealed moderate anemia with 40 per cent hemoglobin. The Wassermann was negative. Repeated agglutinations for typhoid, paratyphoid and undulant fever were negative. No malaria was found. The urine showed slight albuminuria with much bile.

A guinea pig and a rat were injected intraperitoneally with urine on the eighth day. The guinea pig died on the eleventh day, and was autopsied, revealing an icterus of the mucous membranes, nose and feet. The peritoneum was also discolored. Minute areas of focal necrosis were noted in the liver and lungs. The spleen showed acute splenic congestion. The kidneys were enlarged and showed cloudy swelling. Dark field examination of scrapings from the kidney revealed large numbers of very motile typical *Leptospira icterohemorrhagiae*.

Kidneys were sent to the East Baton Rouge Health Unit, where in dark field examination, the finding of a leptospira was confirmed with a positive report.

The temperature gradually subsided on the tenth day and remained normal for two weeks, during which the jaundice began to fade. The temperature, after fourteen days began to run a septic course, ranging from 103° F. to normal, gradually declining by lysis after ten days, on October 14, 1941. During this exacerbation there was no recurrence of symptoms.

The treatment was largely symptomatic. Bismuth in the form of thiobismol was given intramuscularly at weekly intervals. Transfusions and liver, intramuscularly, were given to combat the anemia. The dejecta being infectious, care similar to typhoid was instituted. Convalescence was marked by weakness and debility. He was discharged after subsidence of all symptoms and repeated examination of urine sediment for leptospira was negative.

SUMMARY

The case seen by us, from which the leptospira was demonstrated from the kidney of a guinea pig inoculated intraperitoneally with urine, presented the typical syndrome of spirochetel jaundice, consisting of sudden onset, fever, chilly sensations, prostration, severe muscular pains, especially in the calf of the legs and severe jaundice.

Spirochetel jaundice is probably more prevalent in the United States than is recognized, and spirochetel jaundice does occur in Louisiana.

A review of the literature indicates that the disease is usually associated with rats, polluted water or soil.

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THE ORAL ADMINISTRATION OF A
MERCURIAL DIURETIC IN THE
TREATMENT OF CONGESTIVE
HEART FAILURE

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NEW ORLEANS

Most of the various preparations of mercury which are used to promote diuresis in dropsical conditions must be given parenterally, and the disadvantages of the continued use of this method are well known. It would seem advisable, therefore, to investigate the possibilities of any substitute substance which can be given by mouth with satisfactory results, since its use would facilitate the treatment of such conditions from both the patient's and physician's standpoint.

The purpose of this paper is to report the clinical results in nine colored male patients with congestive heart failure who were treated with salyrgan-theophylline.* No attempt has been made to review the literature concerning diuresis or the action of mercurial drugs.

DESCRIPTION OF THE DRUG

Salyrgan-theophylline oral is described by the manufacturers as a combination of salyrgan and theophylline in the ratio of 2:1. It is available in enteric coated tablet form, each tablet containing 80 mg. salyrgan and 40 mg. theophylline. At the time

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*Salyrgan-theophylline oral was supplied in enteric coated tablets under the research number of S.T.O. 3813 by the Winthrop Chemical Company, Inc.

this paper is written it is not obtainable commercially.

METHOD

A single dose of five tablets of salyrgan-theophylline was given to each of nine patients after breakfast, usually between 9 and 10 a. m. This dosage was repeated in most instances in four to six days, as indicated. As many as three courses were given without deleterious effects.

All nine patients in this personal series were suffering from congestive heart failure either on an arteriosclerotic, hypertensive, or luetic basis. Prior to the administration of the drug each patient was placed at complete bed rest, digitalized, with sedation, limitation of fluids, salt-free diet, and the administration of ammonium chloride. Fluids were limited to approximately 1000 c.c. daily. Three grams of ammonium chloride were given daily for three days prior to the administration of the diuretic. A urinalysis, gastric analysis, complete blood picture, and blood urea-nitrogen determinations were done while the patients were on the preliminary treatment and after the total dosage of the drug had been administered. Urinary output was determined both while the patients were on the preliminary drugs and during the administration of the diuretic. Weights were determined on admission and discharge since I was interested in total weight loss rather than daily variations. At the time the drug was given the ammonium chloride dosage was reduced to 2 grams daily.

The dosage and diuretic effects obtained in this study are set forth in the following table:

TABLE SHOWING EFFECTS OF SALYRGAN-THEOPHYLLINE ORAL

Patient	—Weight—			—Urinary output average—		Total dosage (tablets)	Days treated
	Before	After	Loss	NH ₄ Cl only	NH ₄ Cl plus drug		
1	170 lb.	155 lb.	15 lb.	900 c.c.	2,200 c.c.	10	19
2	164 lb.	151 lb.	13 lb.	800 c.c.	1,200 c.c.	10	25
3	155 lb.	149 lb.	6 lb.	1,200 c.c.	2,000 c.c.	5	20
4	156 lb.	144 lb.	12 lb.	450 c.c.	1,044 c.c.	15	19
5	152 lb.	133 lb.	19 lb.	750 c.c.	2,400 c.c.	10	7
6	178 lb.	145 lb.	23 lb.	900 c.c.	2,225 c.c.	10	12
7	137 lb.	131 lb.	6 lb.	500 c.c.	1,309 c.c.	10	10
8	204 lb.	198 lb.	6 lb.	1,000 c.c.	1,900 c.c.	15	15
9	160 lb.	145 lb.	15 lb.	700 c.c.	1,800 c.c.	10	12

From this table, it is clear that in all nine patients there was a marked reduction in weight accompanied by a satisfactory increase in the urinary output. The loss of weight frequently was very rapid. Thus in case 5 the patient lost 14 pounds during the first 24 hours after the administration of the diuretic. Two of these patients were readmits to the service and had been treated previously with intravenous salyrgan. Their reaction to the oral diuretic was that it was as effective as the previous administration. No attempt was made to compare the merits of the oral and parenteral administration of mercurial diuretics, since this has been well done by Batterman, DeGraff and Rose.¹ In all instances in this series the results by the oral route were equally satisfactory.

The contraindications to the use of salyrgan-theophylline oral are the same as the contraindications to the use of any other mercurial preparation, that is, acute neph-

ritis, colitis with melena, chronic renal disease, a low or fixed specific gravity of the urine, and nitrogen retention in the blood.

No harmful effects from the use of the drug were observed either clinically or by the various tests carried out.

CONCLUSIONS

1. Salyrgan-theophylline oral is a safe and efficacious drug in the promotion of diuresis in edema resulting from congestive heart failure.

2. No ill side-effects were noted in this series of patients.

3. In the average case of congestive heart failure, two to three courses of the drug (10 to 15 tablets), along with digitalization and the administration of ammonium chloride, are sufficient to reduce the edema to a minimum.

REFERENCE

1. Batterman, R. C., DeGraff, A. C., and Rose, O. A.: Treatment of congestive heart failure with an orally administered mercurial diuretic, *Am. Heart J.*, 21:98, 1941.

NEW ORLEANS Medical and Surgical Journal

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*Resigned August, 1941.

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WAR IS HERE

The seventh day of December, 1941, will be a date which will live long in the memory of American citizens. It will be a date which will become historic. On this Sunday morning the Japanese foully and like sneaks in the dark, when negotiations were going on between their diplomatic representatives and those of the United States, struck at Hawaii and our naval base at Pearl Harbor. Never was an attack more unprovoked, and never was an attack more beneficial to a

nation. The peoples of the United States have felt, despite the fighting over most of the world, that they were immune; they could not see eye to eye with the President who was making preparations for conflict and but few of us could realize that war would ever be an actuality. The blow of the underhanded Japanese has joined and made one all the citizens of our great country. To a man, obstructionists and non-interventionists have united for the common good. The nation is of one mind in its determination to overcome the threat to its future manner of life. We are united.

All physicians realize and appreciate that the coming of war will mean a tremendous dislocation in their daily routine. It is inconceivable that life can flow on in a smooth and gentle stream as it has in the past for the average doctor. The waters have been stirred up, they will be turbulent and rough. Although a goodly number of medical men have been drafted into the Army, many, many more will have to go. This will leave a shortage of physicians in towns, cities and rural communities. The doctor will have to work overtime not only in his practice but in carrying out duties which will devolve upon him in the interest of national defense. Every physician who remains in civil life must be prepared to work harder than he has ever done and to put up with difficulties which will be taxing and sometimes overwhelming. There is no doubt in the minds of the American people that the medical profession will respond to their call to duty; responsibilities they will accept whole-heartedly both in the Army and in civil life. They will do a good job and there will be no shirkers.

MEDICINE AND SELECTIVE SERVICE

It might be well to re-state a few of the points that were brought out in a recent talk by General Hershey in regard to the doctor and selective service when he addressed the Annual Conference of Secretaries of Constituent State Medical Associations. General Hershey, in explaining the relationship of the selective service system

to the medical profession, pointed out that it was realized by him that there was a shortage of physicians. Appreciating that the doctors in private practice who have been working on the draft boards have been called upon to give an enormous amount of time, a new method has been evolved whereby the examinations will be very much simpler, the doctor being required to discover only that which is fairly obvious on superficial examination. Paper work will be materially abbreviated as well. General Hershey said he would like to make the medical examiner get rid of the drudgery of the examination and to use the medical examiner in an advisory capacity in advising local draft boards as to many of the questions of a medical nature which they have had to answer without competent advice. Such questions have to do with medical disabilities which might make dependents depend upon a man who is asking for exemption. The doctor could point out that this so-called disability might be one which in no way prevented a person from making a living, that it is something a man or woman 50 years of age would have in many instances. When the new system is put into effect it undoubtedly will relieve the doctor of a tremendous amount of routine work.

General Hershey's statements in regard to the draft physician are so appropriate and so laudatory that they might well be quoted. He spoke as follows: "I did feel and I do feel now that the doctors of America have put out, uncompensated, for Selective Service more than any other occupation. I do not believe we could expect to go on as we have in the last year, asking them to do this without compensation. I tell you frankly I don't want to try to operate Selective Service when we start on a pay basis, because the one thing that has kept us free from many undesirable things was the fact that we could get men who would work for nothing, who would not work for the wages the government could afford to pay. We have got something far beyond what you can hire at the wages we would expect to pay."

WASSERMANN REACTION

It is pointed out by Mohr, Moore and Eagle,* in a recent article, that opinion since the Wassermann test was introduced in 1906 as to the specificity of the serologic test for syphilis has gone through two cycles and is now in a third. The first cycle was a period in which it was thought that positive results occurred in many diseases. In about fifteen years the belief changed to the opposite direction and it became the general concept that the test was truly specific except in the presence of yaws, leprosy, malaria and infectious mononucleosis. In other words, if technical errors were ruled out a positive result implied that a person had syphilis even in the absence of any history or clinical expressions of the disease.

Nowadays it is known that positive results may occur in a few diseases other than syphilis and that in a person who, in every respect can be assumed not to have syphilis, a positive reaction may occur. In this instance when it can be shown that there are no technical errors responsible for the positivity of the reaction and the reaction is positive in laboratories other than the one from which the original report emanated the results are known as biologic false positive reactions. These reactions are of importance as are, of course, the technical false positive reactions as result of the increased demand for serologic studies in the life of the average young male, or occasionally the female. The Wassermann test is necessary before going into the Army; it is made in many industries; it is required in premarital examinations.

The technical false positive reactions are usually dependent upon an effort to increase the sensitivity of the test so that

*Mohr, C. F., Moore, J. E., and Eagle, H.: Biologic false positive serologic reactions in tests for syphilis. I. Occurrence in normal persons, *Arch. Int. Med.*, 68:898, 1941.

with the exaggerated sensitivity it may be there will be as many as 10 per cent or more false positive reactions. These can be excluded very promptly by repetitions of the test in the same or in a different laboratory. On the other hand, the biologic false positive reactions may be repeatedly positive, or doubtful, in the same laboratory, in different laboratories and sometimes with different technics.

The biologic false positive reaction is really of very little moment in public health because it probably does not occur any more frequently than in one-tenth of one per cent of instances. However, such a reaction is, of course, of great moment and of extreme importance to the individual. If he is diagnosed as having syphilis, the social, mental and physical implications are serious; treatment is prolonged, it is not without danger and it is inconvenient and expensive. It behooves the physician then, in the absence of a history of sexual contact and in the absence of any physical findings of syphilis, repeatedly to check a positive reaction. Certainly this should be done most thoroughly before submitting the patient to treatment. Fortunately the reagin-like substance in the blood which causes biologic false positive reaction in the standard test for syphilis, is usually present only temporarily, that is for a few months; only in the exceptional cases is it permanently present. The reagin incidentally is present in the serum of many animals. In two animal species, the dog and cattle, positive reactions are in direct relationship to the age of the animal.

The authors of the paper from which this information has been obtained report upon nine people who, in every respect, were normal and did not have syphilis but who did have biologic false positive reactions. They state that it is probable that many normal serums contain in minute amounts the reagin-like substance that motivates the test, but it is only under exceptional circumstances that the amount of this factor is sufficiently great to complicate the blood serologic test.

A CALL TO THE MEDICAL PROFESSION

The nation is at war. The Congress has passed an amendment to the Selective Service Act which will call for registration of every man up to the age of 65 and which will place all men under 45 years of age subject to service at the order of the Selective Service boards.

The Procurement and Assignment Service for Physicians, Dentists and Veterinarians was established by order of the President on October 30. Thus the medical profession itself aids in determining proper distribution of the medical profession in supplying the needs of the armed forces and maintaining medical service to civilian communities, public health agencies, industrial plants and other important needs.

At a meeting of the Procurement and Assignment Service held in Chicago at the headquarters of the American Medical Association on December 18, jointly with the Committees on Medical Preparedness of the American Medical Association, the American Dental Association and the American Veterinary Medical Association, plans were drawn for making immediately available to the United States Army and Navy Medical Corps the names of physicians who wish to be enrolled promptly in the service of the government in this emergency.

On the opposite page is published a blank by which every physician may at once place his name with the Procurement and Assignment Service as one who is ready to serve the nation as the need arises. If you wish to make yourself available for classification, fill out this blank and send it at once to Dr. Sam F. Seeley, Executive Director of the Procurement and Assignment Service. When these blanks are received, they will be classified and checked with the information available in the national roster of physicians at the headquarters of the American Medical Association.

For two thousand and nine counties in the United States, lists have been prepared indicating physicians who are engaged in necessary civilian projects, public health services or educational activities from which they cannot be spared. Shortly the

rest of the counties will have such lists available.

In each of the corps areas covering the United States a committee is being established, including representatives of medical, hospital, educational, dental and veterinary activities. In the individual states, committees of medical, dental and veterinarian professions are being established through which the corps area committees will exercise their functions. In each county also local committees will provide accurate information regarding the status of each member of the profession concerned.

The raising of the Selective Service age from 28 to 45 will place a great number of additional physicians in the category of those on whom the nation may call as their services are needed. Estimates indicate that some sixty thousand physicians thus become available for service and that forty-two thousand dentists under the age of 45 also become subject to call. By enrolling with the Procurement and Assignment Service immediately, utilizing the blank on the opposite page, all physicians, but particularly those under 45 years of age, insure to every extent possible assignment to the type of service for which they are best fitted. They avoid thus also the possibility of unclassified service with the United States Army during the period that may be necessary following selection by the Selective Service before the commission can be secured. A

physician called by the Selective Service who has not enrolled or who is not on a reserve list obviously serves without a commission during the time that necessarily elapses before a commission is secured. In future issues of *The Journal* announcements will be made regularly of the numbers of those who enroll and the extent to which the immediate needs of the Army, Navy and other government agencies are being supplied.

The above editorial is a reprint of an editorial which appeared in the *J. A. M. A.* of December 27. This editorial is being reprinted because of the possibility that it might not reach as many members of the State Society through the *J. A. M. A.* as through the *New Orleans Medical and Surgical Journal*. Furthermore, we are publishing in this issue of the *Journal* an enrollment blank similar to the one published in the *J. A. M. A.* by which it is hoped to reach most of the medical men in the state. You are urged to fill out this blank and return immediately to the Procurement and Assignment Service in Washington, D. C. It is hoped by this service to create a pool of names from which the Army, Navy and Public Health Service may draw in order to supply physicians for the federal services when the armed force is rapidly expanded.

**Enrollment Form for Procurement and Assignment
Service for Physicians**

Dr. Sam F. Seeley, Executive Officer
Procurement and Assignment Service
New Social Security Building
4th and C Streets S. W.
Washington, D. C.

Dear Doctor Seeley:

Please enroll my name as a physician ready to give service in the Army or Navy of the United States when needed in the current emergency. I will apply to the Corps Area commander in my area when notified by your office of the desirability of such application.

Signed

- 1. Give your name in full, including your full middle name:
- 2. The date of your birth:
- 3. The place of your birth:
- 4. Are you married or single?
- 5. Have you any children? If so, how many?
- 6. Do you believe yourself to be physically fit and able to meet the physical standards for the Army and Navy Medical Corps?
- 7. Have you filled out previously the questionnaire sent to all physicians by the American Medical Association?
- 8. When and where were you graduated in medicine?
- 9. In what state are you licensed to practice?
- 10. Do you now hold any position which might be considered essential to the maintenance of the civilian medical needs of your community? If so, state these appointments:
- 11. Have you previously applied for entry into the Army or Navy Medical Service? If so, state when, where and with what result (if rejected, state why).

Signature

Date

Address

HOSPITAL STAFF TRANSACTIONS AND CLINICAL MEETINGS

TOURO INFIRMARY

New Orleans

A combined meeting of the Medical Staff of the hospital and the New Orleans Gynecological and Obstetrical Society was held on December 10 in Lecture Room A. The following program was presented: Clinico-pathologic Conference by Dr. S. Harvey Colvin; Cancer of the Rectum: An Unusual Case Report, by Dr. Warren Hebert; Endometrial Studies as Related to Ovarian Function, Dr. Conrad Collins.

NEW ORLEANS SOCIETY FOR NEUROLOGY AND PSYCHIATRY

The October meeting was held at Touro Infirmary, with Dr. Edmund Connely, President, in the chair.

SUMMARY OF PROGRAM

A Review of Experimental and Clinical Work with Vitamin E and Its Application to Clinical Cases, by Dr. Theodore L. L. Soniat.

Dr. Soniat reviewed recent clinical reports dealing with the use of vitamin E in cases of amyotrophic lateral sclerosis and progressive muscular dystrophy. Conflicting results as reported in the literature were stressed and the oral, intramuscular and intravenous treatments outlined. He concluded that there were many discrepancies in the reported results and that early cases apparently respond no better than late cases. There may be a short period of subjective improvement but without objective evidence; no conclusive evidence that vitamin E alone or in combination with other vitamins can produce any benefit in amyotrophic lateral sclerosis or in progressive muscular dystrophy.

DISCUSSION

Dr. Skogland referred to similar results in his experience. He mentioned two objective methods of evaluating the effect of vitamin E treatment, the ergograph and the electromyograph which measure muscular strength and also the number of fibrillations in an individual muscle. No improvement by these objective methods of observation was noted after six months of study. In some patients there was definite evidence of progression of the muscular disease while under treatment.

Dr. Newbill emphasized the difficulties of relating too closely deficiency experiments performed on animals that had lesions, to the lesions seen clinically in man.

Dr. T. A. Watters presented some very interesting films of his recent visit to Mexico which was made in order to take part in the Sixteenth Seminar in Mexico, sponsored by the Committee On Cultural Relations with Latin America. His trip was sponsored by the Hartford Retreat, Hartford, Connecticut, through Dr. C. C. Burlingame, Psychiatrist-in-Chief.

There were 54 Americans in the party and 21 Mexicans. The Seminar consisted of formal lectures, conferences and discussion groups, as well as field trips, and it covered Mexican life from all angles and approaches.

While there he had the pleasure of meeting any number of prominent Mexican psychiatrists, visited several of the medical schools as well as their large public hospital for mental disorders, and one private hospital for nervous disorders. Also he had the opportunity of giving a talk before the Senior class at the University of Mexico Medical School.

He was afforded a wonderful opportunity of getting an insight into the psychology of the Mexican people and their health problems in general.

LEWIS A. GOLDEN, M. D., Sec.

LOUISIANA STATE MEDICAL SOCIETY NEWS

C A L E N D A R

PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
East Baton Rouge	Second Wednesday of every month	Baton Rouge
Morehouse	Second Tuesday of every month	Bastrop
Orleans	Second Monday of every month	New Orleans
Ouachita	First Thursday of every month	Monroe
Sabine	First Wednesday of every month	
Second District	Third Thursday of every month	

CIVILIAN MEDICAL DEFENSE

The physicians of Louisiana should be acquainted with the activities of the State Medical Society in offering to the State Committee on Civilian Defense the one hundred per cent cooperation of the doctors of this state.

After frequent consultations by Dr. King Rand, President of the Society, with the Coordinator of the Louisiana Civilian Defense Council, Mr. Roland Cocreham, a State Medical Defense Council was appointed. This Council held a meeting on December 18 in the office of the Coordinator in

Baton Rouge and after organization a thorough review of the medical problems incident to medical civilian defense was discussed. Very shortly the doctors, through the parish medical societies or through the parish defense councils which have already been appointed, will be approached concerning their availability in regard to rendering medical service under this state plan. There will be appointed in every parish, and in various towns, a Chairman of Emergency Medical Service, whose duties will be to coordinate and bring into this organization adequate medical service for any emergency. These contacts will be made shortly and you are urgently requested to lend your wholehearted effort and support in order that appropriate and adequate service can be rendered to the civilian population.

Through the Journal we will continue to bring to your attention developments concerning these services.

P. T. TALBOT, M. D.,
Secretary-Treasurer.

THE NEW ORLEANS GRADUATE MEDICAL ASSEMBLY

The previous issue of the journal contained a brief outline of the first two meeting days of The New Orleans Graduate Medical Assembly, March 2 and 3. The following guest speakers are scheduled to be on the program on March 4 and 5.

The Section on Surgery will be represented by two guest speakers, Dr. Frank H. Lahey, President of the American Medical Association, and Col. Norman T. Kirk, Director of Surgery, Army Medical School, Army Medical Center, Washington, D. C. Dr. Lahey has selected as his topics "Lesions of the Terminal Ileum, Colon and Rectum," "Some of the Common and Uncommon Thyroid Problems" and "The Place of Medicine in the Country Today." He will also take part in the Clinico-pathologic Conference. Colonel Kirk has chosen very important and timely subjects, namely, "Plan for Evacuation and Treatment of War Casualties," "The Guillotine or Open Amputation" and "The Medical Department Problems in the Present Emergency." Colonel Kirk has made the following contributions to medical literature: "Amputations," Lewis Loose Leaf Surgery; "Tetanus and Tetanus Toxoid," Nelson Loose Leaf Surgery; "End Results of 158 Consecutive Autogenous Bone Grafts for Non-union Long Joints," and numerous other publications.

Dr. Frank D. Dickson has accepted the invitation of the Section on Orthopedic Surgery. His talks will be "The Surgical Treatment of Arthritis," "The Sulfonamides in the Treatment of Chronic Osteomyelitis," and "The Management of Compound Fractures with Especial Reference to the Part Played by the Sulfonamide Drugs." Dr. Dickson is Associate Professor of Clinical Surgery, University of Kansas School of Medicine, and Chief of Orthopedic Service at the Kansas City General

Hospital, St. Luke's Hospital and Providence Hospital.

Dr. Edwin C. Hamblen, guest gynecologist, will speak on "The Use of Female Sex Hormones in Clinical Practice," "Gonadotropic Therapy," and "The Sterile Couple: Diagnostic and Therapeutic Problems." Dr. Hamblen is Associate Professor of Obstetrics and Gynecology, Duke University School of Medicine, and Chief of Endocrine Division and Endocrinologist, Duke Hospital.

Dr. Samuel A. Cosgrove will be the guest speaker for the Section on Obstetrics. Dr. Cosgrove is Professor of Clinical Obstetrics, Faculty of Medicine, Columbia University, New York, and Medical Director and Attending Obstetrician, Margaret Hague Maternity Hospital, Jersey City. His topics are as follows: "Remarks on Management of Heart Disease and Toxemia in Pregnancy," "Commentaries on Some Selected Case Reports," "Indications and Conditions for Use of Forceps" and "Extra-peritoneal Cesarean Section."

In addition to these, Dr. Albert D. Ruedemann, of Cleveland, Ohio, will be the guest ophthalmologist and Dr. Thomas E. Carmody, of Denver, Colorado, will represent the Section on Otolaryngology. Also, Dr. Alexander Randall, Professor of Urology, University of Pennsylvania School of Medicine, and Dr. Charles F. McCuskey, Associate Professor of Anesthesiology, University of Southern California School of Medicine, are scheduled for the last two days of the meeting.

In addition to the lectures many other features will add to the value of the meeting. The numerous scientific exhibits will be of great interest and there will be approximately sixty exhibits on display by ethical manufacturers of drugs and equipment. The doctors of Louisiana are urged to attend the meeting and give the Assembly the support it so justly deserves.

ASSUMPTION PARISH MEDICAL SOCIETY

There were eight of the eleven members present at the annual meeting of the Society held on December 17. A wild duck dinner was served and several physicians from adjoining parishes and New Orleans were guests of the Society.

Dr. P. T. Talbot, secretary-treasurer of the State Medical Society, spoke a few words on medical civilian defense. Dr. H. B. Alsobrook, of New Orleans, read a paper on "Office Gynecology" and Dr. W. E. Kittredge, Jr., also of New Orleans, read a paper on "Some Phases of Urology of Interest to the General Practitioner."

P. M. PAYNE, M. D., Sec.

BI-PARISH MEDICAL SOCIETY

The Bi-parish Medical Society met in the Rist Hotel at Clinton on December 3 for the annual meeting. Election of officers resulted as follows: Drs. W. J. Roberts, president; R. A. Donaldson, vice-president; E. M. Toler, secretary-treasurer; C. S. Toler, delegate; E. M. Robards, alternate.

Dr. Robards made some interesting remarks on pulmonary tuberculosis.

The usual superb dinner prepared for the Society by Mr. and Mrs. August Rist was enjoyed by those present; a vote of thanks was extended to Mr. and Mrs. Rist for the bounteous repast.

E. M. TOLER, M. D., Sec.

FIFTH DISTRICT MEDICAL SOCIETY

The following resolution was adopted by the Fifth District Medical Society in regard to the recent death of Dr. R. W. O'Donnell on November 24, 1941:

"WHEREAS, Our neighbor and professional confrère, Dr. R. W. O'Donnell, has answered the final call, and

"WHEREAS, We who knew him best regarded him most highly for his personal and professional qualities as a man whose life was clean and free from guile, and while we must bow to the inevitable, we know that there is a vacancy in the home and in the community which cannot be filled,

"Therefore, be it *Resolved*, that this expression of our regard in behalf of the Fifth District Medical Society be adopted and spread on the minutes of the Society, and that a copy be sent to the family of the deceased and another copy be given to the press."

Signed: F. C. BENNETT, M. D.

J. Q. GRAVES, M. D.

C. P. GRAY, M. D.

SECOND DISTRICT MEDICAL SOCIETY

A regular meeting was held at the home of Dr. W. B. Clark in Metairie, on November 27. After the business session three presentations were made by personnel of the State Department of Health. Dr. J. H. Musser spoke on the organization of the health department; Mr. J. W. Forbes, supervisor of the Section on Foods and Drugs, spoke on controlling the proprietaries, and Dr. Durkin discussed the functions of the local parish health unit directors. Succeeding the business and scientific meeting, an excellent repast was spread by the host and hostess.

DR. MATAS HONORED

Dr. Rudolph Matas was recently presented the Medal of Havana, the highest distinction conferred by that city in commemoration of the anniversary of the birth of Dr. Carlos Finlay who first suggested the mosquito as the vector responsible for the transmission of yellow fever.

National Research Fellowships for training in the field of orthopedic surgery have been opened to doctors of this country who are not more than 30 years of age or thereabouts. These Fellowships are for one year, renewable and pay from \$1600 to \$2400 per year.

COMMITTEE ON FOOD AND NUTRITION

Dr. Russell M. Wilder, chairman of the Committee on Food and Nutrition of the National Research Council, and Dr. James S. McLester, Chairman of the Council on Foods and Nutrition of the American Medical Association, have circularized the physicians of the United States recommending the use of whole wheat bread and of natural butter. When pure white flour is used they advocate the addition of thiamin and nicotinic acid and mineral iron, and if oleomargarine is used, the addition of vitamin A. They also recommend the very general use of iodized salt in view of the increasing incidence of simple goiter.

NATIONAL GASTROENTEROLOGICAL ASSOCIATION AND MARINE HOSPITAL

A joint meeting of the National Gastroenterological Association and the Marine Hospital Staff was held on Wednesday, December 17 at 8 p. m. The program consisted of the following: Pathology of the Lower Bowel, by Dr. Ralph Pagel; Roentgenologic Diagnosis of the Condition of the Pelvic Colon, by Dr. Antonio Mayoral; Prolapse of the Rectum, Operative Procedure, by Dr. Isidore Cohn; Pancreatic Achylia with Food Allergy, Report of a Case, by Dr. Morris Shushan.

P. L. QUERENS, M. D., Sec.

POSTGRADUATE COURSES

The American College of Physicians has arranged for a series of courses to be given in various sections of the country during the coming winter.

Course 1 on allergy, will be held at the Roosevelt Hospital in New York, will be conducted by Dr. Robert A. Cooke, and will last for two weeks. Course 2, on diagnosis and treatment of heart disease, will be conducted by Dr. Paul D. White at the Massachusetts General Hospital, Boston. Course 3 will be at the University of California Medical School and Stanford University School of Medicine, under the directorship of the Professors of Medicine at the respective institutions. Course 4, internal medicine, like the other courses, will also run from February 2-14 and will be held at the Johns Hopkins University School of Medicine and Maryland School of Medicine under the directorship of Dr. Warfield T. Longcope and Dr. M. C. Pincoffs. Course 5, on gastrointestinal diseases, will run for one week, February 2-7, at the Graduate Hospital of the University of Pennsylvania and will be conducted by Dr. Henry L. Bockus.

A further series of courses will be held in April in the two weeks preceding the annual meeting of the American College of Physicians. These courses will be held in St. Louis; Rochester, Minnesota; University of Chicago; University of Minnesota, and the University of Colorado. These courses will afford the members of the College an excellent op-

portunity to review the latest developments not only in general medicine but also in some of the subspecialties of medicine.

The American Board of Obstetrics and Gynecology will hold general oral and pathologic examinations for all candidates in Atlantic City, in June, 1942, immediately before the annual meeting of the American Medical Association.

ANNUAL CONGRESS ON INDUSTRIAL HEALTH

The fourth annual Congress on Industrial Health sponsored by the American Medical Association, will be held Monday and Tuesday, January 12-13, 1942 at the Palmer House in Chicago. An extremely interesting program has been arranged including a symposium on Undergraduate Industrial Medical Education, a series of excellent papers, an informal dinner and round-table discussion, and field trips.

Assistant Surgeon Samuel C. Duhon of the U. S. P. H. S. has been relieved from duty at the Marine Hospital in New Orleans and ordered to proceed to the Quarantine Station, Algiers, for duty.

Passed Assistant Surgeon George C. Van Dyke has been relieved from duty in Washington, D. C., and ordered to proceed to New Orleans to establish headquarters for duty.

Assistant Surgeon (R) Clarence Kooiker has been relieved from duty at Alexandria and ordered to proceed to the States Relations Division, Washington, D. C., for duty.

INDUSTRIAL HYGIENE

The increasing importance of Louisiana in National Defense because of industry warrants calling the attention of the medical profession to industrial hygiene.

A Section of Industrial Hygiene will be begun on January 1, 1942 in the Division of Preventive Medicine of the State Department of Health. This section will be under the direction of Dr. S. S. Pinto.

There is an opening for an eye, ear, nose and throat specialist at the King's Daughters Clinic, Temple, Texas. For further details write Dr. J. S. McCelvey, at the Clinic.

RECLASSIFICATION OF DRAFTEES

Local boards throughout Louisiana have been directed to discontinue the Class IV-A classification of registrants predicated on previous military training and to reclassify men already placed in that category to determine their availability for additional service in the armed forces, General

Raymond H. Fleming, State Director of Selective Service, said today.

The action was necessitated by the entry of the United States into war against Axis powers and the resultant cancellation of provisions of the Selective Training and Service Act of 1940 which granted deferment to certain ex-servicemen in time of peace, the Director said.

Heretofore the following men have been placed in Class IV-A:

"Any person who satisfactorily served as an officer or enlisted man for at least 3 consecutive years in the Regular Army, Navy, Marine Corps, or Coast Guard; or any enlisted man who was honorably discharged from the Regular Army or the Coast Guard for the convenience of the Government within 6 months prior to the completion of his regular 3-year period of enlistment.

"Any person who as a member of the active National Guard satisfactorily served as an officer or enlisted man for at least 1 year in active Federal service in the Army of the United States and subsequent thereto for at least 2 consecutive years in the Regular Army or in the active National Guard.

"Any person who was an officer or enlisted man in the active National Guard at the time fixed for registration, and who satisfactorily served therein for at least 6 consecutive years.

"Any person who was an officer in the Officers' Reserve Corps on the eligible list at the time fixed for registration, and who satisfactorily served therein on the eligible list for at least 6 consecutive years.

"Any person who as a member of the Naval Reserve or the Marine Corps Reserve satisfactorily served for at least 1 year on active duty and for at least 2 consecutive years in the Regular Navy or Marine Corps or with an organized unit of the Naval Reserve or the Marine Corps Reserve.

"Any person who was an officer or enlisted man in the organized Naval Reserve or in the Organized Marine Corps Reserve at the time fixed for registration, and who satisfactorily served therein for at least 6 consecutive years.

"Any person who was an officer or enlisted man in the Naval Merchant Marine Reserve or Volunteer Naval Reserve or Volunteer Marine Corps Reserve at the time fixed for registration, and who satisfactorily served therein for at least 8 consecutive years.

"Members of the United States Coast Guard Reserve, other than temporary members, received the same classification as members of the Naval Reserve."

Discussing the elimination of Class IV-A, General Fleming emphasized that only those men who are reclassified into Class I-A, the class for men available for general military service, will be called for duty in the armed forces.

Ex-servicemen who have dependents or who are engaged in positions essential to the national health, safety, and interest will be given the same

consideration for deferment as are other registrants, he pointed out.

Also, General Fleming said, the ex-servicemen must come within the age limitations fixed by law to be classed in Class I-A.

ADMISSION POLICY OF THE STATE SUPPORTED GENERAL HOSPITALS

Louisiana has had a tradition of granting free medical care without question to anyone who requested it. Since the founding of the Charity Hospital in New Orleans in 1735 and the founding of the Charity Hospital in Shreveport in 1876 this tradition has been one of which legislators were proud. The medical profession, however, while always willing and eager to offer free care to those who are unable to pay, believed that the dispensing of medical care without question was being abused by those able to pay for care. But it was not until 1924 that this feeling was crystallized and the legislature authorized the Board of Administrators of the Charity Hospital in New Orleans to study the problem of abuse. In 1926 as a result of pressure from the Medical Society the legislature passed the Hospital Abuse Act making it a misdemeanor for patients able to pay to receive treatment at the New Orleans Charity Hospital. The Act provided that in no instance was an emergency case to be refused admission, but otherwise only the poor and destitute were to be given treatment. Applicants themselves, however, determined whether or not they were poor and destitute by signing a statement that they were unable to pay for hospital and professional services. Following the passage of this Act, the admissions to Charity Hospital in New Orleans continued to increase steadily. At that time no cognizance was taken of the fact that there was abuse on the basis of residence, as well as ability to pay.

In 1936 when the State Hospital Board was established, the creation of several smaller Charity Hospital units throughout the State was planned. Admission to these hospitals, it was agreed, would be based on an investigation to show inability to pay for private medical care, but workers without training in social work were used to make this investigation and there was no supervision of their work. In many instances the use of the family income as spent was accepted. No attempt was made to suggest readjustment of the budget to permit payment for medical care.

In 1940 the Legislature passed Act 47, commonly known as the Reorganization Act, in an effort to prevent the abuse of the state supported general hospitals by those able to pay for private hospital and professional services and by those who were not residents of Louisiana. Under the Reorganization Act all applicants for free medical care will be interviewed by trained personnel to determine whether or not they can pay for medical care and whether or not they are residents of Louisiana. For the first time public medical care will be grant-

ed on the basis of individual need and not given away more or less indiscriminately.

For the first time the granting of free medical care will be based on consideration of the member of the family who is ill, the cost of the illness, the duration and probable outcome of the illness. In order to determine the cost of illness the Medical Society is working on the range of professional fees for various illnesses. The rates of private hospitals in different parts of Louisiana have been secured, and with the list of fees for professional services developed by the Medical Society for the different sections of Louisiana, the Department of Public Welfare will have definite information on which to estimate the cost of various illnesses. For the first time the people of Louisiana will be faced with the fact that everyone should try to provide for future illness.

There will be no difficulty in defining the residence requirement for admission which will be the same as required for eligibility for public assistance. Residence is acquired by living in the State for one continuous year, and once established is not lost until absence from the State has amounted to one continuous year, provided there has been no impediment to return to Louisiana.

The ability to pay for medical care, however, cannot be determined so easily. Free medical care, as everyone will agree, should be given those eligible for such grants, but who because of lack of relief funds are not receiving aid. Besides the relief group there are the border-line cases in which there may be disagreement as to eligibility for free medical care.

The Louisiana State Medical Society has defined the medically indigent as "a person who is unable in the place in which he resides, through his own resources, to provide himself and his dependents with proper medical, dental, nursing, hospital, pharmaceutical and therapeutic appliance care, without depriving himself or his dependents of necessary food, clothing and shelter, as determined by the local authority charged with the study of dispensing relief for the medically indigent."

The American Medical Association¹ has stated that: "It appears to be generally accepted that medical service may be freely given to those with a much higher income than is considered as denoting eligibility for the receipt of other necessities."

The American Public Welfare Association² has defined the medically needy as "a person who is unable in the place in which he resides, through his own resources, to provide himself and his dependents with proper medical, dental, nursing, hospital, pharmaceutical and therapeutic appliance care without depriving himself or his dependents of the necessary food, clothing, shelter and similar necessities of life."

The Department of Public Welfare has instructed its workers to consider as eligible for free medical care any person who is not able to provide a minimum subsistence compatible with decency and

health, according to the budgetary standards established by the Department of Public Welfare for public assistance cases. Only after certification has been done over a period of months will it be known whether or not eligibility requirements are lowering the standard of living to a degree harmful to health.

In order to get the admission procedure started the Department of Public Welfare and the Department of Institutions agreed on certain tentative rules:

1. Applicants for free medical care should secure a statement from their personal physician indicating the need of medical care.

2. This statement should be taken to the local office of the Department of Public Welfare by the applicant.

3. If the Department of Public Welfare finds that the applicant is a resident of Louisiana and is unable to pay for medical care, he will be given a form certifying that he is eligible.

4. The applicant with the form should report to the nearest State supported general hospital.

5. If the applicant's personal physician considers him in need of immediate hospital care the applicant should go directly to the hospital.

6. The hospital will notify the Department of Public Welfare that the applicant has been admitted, so that the process of certification can be started. It will be helpful if in cases of emergency a member of the family will report to the local Department of Public Welfare office following applicant's admission to the hospital.

7. Any applicant admitted to the hospital for emergency treatment, who is subsequently found able to pay for services will be transferred to a private institution as soon as the emergency ceases to exist.

It is hoped that as the certification process is developed much of the procedure can be simplified. Every effort will be made to prevent the procedure working a hardship on a patient who is ill.

It will be some time before this system will reveal: How many persons can pay for care; how many individuals there are for whom medical care outside of a public institution can be arranged; how many applicants unable to pay for full care might be able partly to pay for care; how many persons unable to pay for private medical care at present would have been able to maintain insurance to cover hospital and professional services.

It is hoped that after the admission procedure has been in effect for a period of six months or longer a follow-up report on the progress of certification can be made through this Journal.

Since this is a new procedure it is to be expected that in its operation many difficulties will be experienced. There will be many times when the medical profession, the applicant, the hospital and the Department of Public Welfare will become discouraged and wish that admission were on a less discriminate basis.

Because the new admitting system should eventually function satisfactorily and adequately as it does in other states, and because this procedure should help protect the private hospitals and the medical profession of Louisiana, it is hoped that everyone will cooperate so that the advantages of the new system can be demonstrated.

WALTER O. MOSS, M. D.
Lake Charles

1. Care of the Indigent Sick, American Medical Association Press, 1934, p. 29.

2. Handbook on Public Welfare Legislation, American Public Welfare Association, 1938.

INFECTIOUS DISEASES IN LOUISIANA

The morbidity report of the Section of Epidemiology of the Louisiana State Board of Health shows that for the week ending November 15, the forty-sixth week of the year, there were 174 cases of syphilis, 52 of tuberculosis, 38 of gonorrhea, 17 of pneumonia, 16 of influenza, 13 of malaria and 11 of typhoid fever. The typhoid fever cases were scattered throughout the state with Caddo Parish having four instances. There was one case of poliomyelitis listed this week. For the following week which terminated November 22 there was a sharp increase in the number of cases of syphilis, 367 being reported this week. The following diseases, in numbers greater than 10, were listed according to their numerical rank: hookworm 69, gonorrhea 60, pneumonia 23, tuberculosis 15. One case of typhus fever appeared in the weekly report and six cases of undulant fever, five of which were from St. Tammany Parish. The following week which ended November 29 there occurred 191 cases of syphilis, 37 of gonorrhea, 18 of pneumonia, 16 of influenza, 14 of tuberculosis and 11 of typhus fever; these latter cases were distributed as follows: Lafayette Parish four, Madison three, Orleans two, St. James one, and Washington one. Another case of poliomyelitis was reported this week. For the first week in December there were reported 227 cases of syphilis, 33 of gonorrhea, 32 of pneumonia, 16 of tuberculosis, and 11 of typhus fever. It is interesting to note that the typhus fever cases were scattered throughout the state; Iberia Parish having three, Avoyelles two, Caddo two, Madison two, and Grant and Orleans one each. This disease is becoming of epidemiologic importance. The rate is increasing steadily and persistently. It is interesting to note that, except for syphilis and typhus fever, all other reportable diseases are very much below the five year average report.

HEALTH OF NEW ORLEANS

The Bureau of the Census, U. S. Department of Commerce, has reported that for the week ending November 8, there were 128 deaths in the City of New Orleans; 80 of the people dying belonged to the white race and 48 to the negro. Seven of the reported deaths were in children under one year of age. For the next week there were 153 deaths in

the City of New Orleans, 104 in the white population and 49 in the negro, with 14 infant deaths. For the week which closed November 22 the deaths increased slightly over the previous week. There were exactly the same number of white people dying but there were 65 negro deaths, bringing the total number up to 169. Thirteen of these deaths were in infants. There was a drop in the number of deaths in the city, in both races, during the week which ended November 29. Of the 144 people who died 84 were white and 60 were negroes. There

were 16 deaths for this particular week in infants under one year of age. There was a very sharp diminution in the number of deaths, remarkably low as a matter of fact, for the week closing December 6. This was brought about as there were only 29 negro deaths which, with the 74 white deaths, made a total of 103. There were only five infant deaths this week. As pointed out before, the year 1941 has been a healthy year. So far there is reported almost 600 less deaths than for the corresponding time in 1940.

BOOK REVIEWS

Manual of Clinical Chemistry: By Miriam Reiner, M.Sc. New York, Interscience Publishers Inc., 1941. Pp. 296. Price \$3.00.

This is a compact volume including methods used for a large number of determinations which are required in a hospital chemical laboratory. It gives enough theory and explanation to make possible the performance of these tests with understanding. The normal values and the tables of abnormal findings in disease are exceedingly valuable. Tests for vitamins, hormones, and the sulfonamides, which are of such importance at the present time, are also outlined. This is a very useful and well arranged book and is highly recommended.

JOSEPH ZISKIND, M. D.

Infantile Paralysis: Anterior Poliomyelitis: By Philip Lewin, M.D., F.A.C.S. Philadelphia, W. B. Saunders Co., 1941. Pp. 372. Price \$6.00.

The publication of this excellent monograph is opportune in view of the fact that we are becoming increasingly aware that this country faces a major crisis in the spread of infantile paralysis.

Dr. Lewin states that while poliomyelitis has a background in antiquity, the disease was almost unheard of in this country forty years ago. It now seems to be increasing numerically in the number of cases, also geographically in its distribution, and appears to be changing in numerous other respects.

The book contains 371 pages, 26 chapters, many excellent tables, charts, drawings, photographs, an appendix, and a classified bibliography. No single volume of reasonable proportions that I know of contains such a wealth of information, its practical theory and application. It is a brilliant contribution written with ease and clarity, and it will amply repay anyone who uses it, regardless of his status in the field of medical science.

C. P. MAY, M. D.

Foundations of Neuropsychiatry: By Stanley Cobb, A.B., M.D. 2d rev. & enl. ed. Baltimore, Williams & Williams Co., 1941. Pp. 231. Price \$2.50.

All of Stanley Cobb's scientific literary productions are excellent and this one is no exception. It is essentially a rewriting of *A Preface to Nervous Diseases*.

Some of the new knowledge about the hypothalamus, a summary of what is known of the thalamus, and a lot of new material on the frontal lobes has been included. The chapters on cerebral circulation and on epilepsy have been entirely rewritten. The data elicited by encephalographic studies and observations in epilepsy are presented. And there has been added a brief, extremely valuable and satisfactory section on psychopathology.

Dr. Cobb believes that the psychiatrist knows much about what occurs in abnormal minds, but little about why and how it occurs. Mention is made of extensive cerebral arteriosclerosis occurring in people under the age of thirty. He says a large part of psychotherapy is to uncover repressions that cause compulsive behavior and to replace such behavior with acts of judgment. And he believes that the division of psychiatric reactions into "psychotic or neurotic" and into "organic or functional" is unwarranted, misleading, and harmful, and leads students away from the important biologic facts they can observe if they adhere to a descriptive point of view.

The author excellently presents data on "reactive depression." He asserts that the mechanism of hysteria can be explained as conversion of a psychologic frustration into an overt pseudoneurologic symptom, with amnesia for the mechanism.

The reviewer is curious about Dr. Cobb's high praise of Dr. F. M. R. Walshe's *Diseases of the Nervous System*. A most unfavorable criticism of this book appears in a review in the *Journal of the American Medical Association*, June 12, 1941.

Dr. Cobb's book is warmly and unreservedly recommended for the use of students and physicians. It is supplemented by extensive citations of relevant literature.

C. P. MAY, M. D.

A Textbook of Ophthalmology: By Sanford R. Gifford, M.A., M.D., F.A.C.S. 2d ed. rev. Philadelphia, W. B. Saunders Co., 1941. Pp. 470, illus. Price \$4.00.

This small textbook of ophthalmology should well fulfill the purpose of the author in serving as a textbook for the undergraduate student and as a handbook for use in general practice. The text is

necessarily brief but includes the essentials in diagnosis and treatment. The book is well illustrated with diagrams, anterior segment and fundus photographs and drawings, and microphotographs.

Additions and revisions in this new edition include descriptions of the use of the newer drugs in treatment, and rewritten sections on the sclera and on fundus changes in cardiovascular renal disease.

P. W. RENKEN, M. D.

Principles of Hematology: By Russell L. Haden, A.M., M.D. 2d ed. rev. Philadelphia, Lea & Febiger, 1940. Pp. 362. Price \$4.50.

This well organized, well illustrated, compact volume should be a real aid to those interested in hematology. The student and physician will find the fundamental principles of this subject clearly explained and illustrated with typical examples. The technic of the blood examination is cited in such a way that the methods can be easily followed and applied to actual cases with little difficulty. Dr. Haden discusses only those methods which are necessary for the diagnosis of the majority of cases. He does not discuss the more difficult techniques such as splenic or sternal punctures. Dr. Haden has simplified the mathematics of hematology with nomograms and three dimensional charts. Rare blood dyscrasias are not mentioned as the book confines itself to certain routine procedures which are essential to the diagnosis of the more common hematologic conditions.

If one is looking for detailed consideration of any subject of hematology, he will not find it here. There is no discussion and the principals are set down didactically and with finality. If one uses this book as a handbook, a guide or a method of blood examination and hematologic interpretation, he will find it useful. If he wants a reference to an obscure disease, a detailed description of any one disease or highly specialized technic, he should go to some other source.

The book is beautifully printed and contains many original photomicrographs and original drawings. It is to be highly recommended.

TRAVIS WINSOR, M. D.

The Foot and Ankle, Their Injuries, Diseases, Deformities and Disabilities, with Special Application to Military Practice: By Philip Lewin, M.D., F.A.C.S. 2d ed. Philadelphia, Lea & Febiger, 1941. Pp. 665. Price \$9.00.

All of the good points in this work have been retained in the new edition. The addition of the section relating to the military aspects of the foot and ankle is interesting but does not add any major value to the work as a whole. A very careful survey of all the recent knowledge acquired in Europe as to the care of war injuries has been incorporated. This survey is really a resumé of the recent literature on the whole broad subject of war sur-

gery, without any emphasis being particularly laid upon the problems peculiar to the foot and ankle.

The critical evaluation of the lessons learned in Europe recently is excellent and its inclusion in the new edition timely. The reviewer does not consider the additions of sufficient value to discard the 1940 edition in favor of the newer edition.

The book remains a better text on the foot and ankle than any other book published to date. It offers a quick, accurate resumé of the information available today, and the excellent bibliography, which has been supplemented in the new edition, is an invaluable guide towards further study. For the general practitioner and student of orthopedic surgery it is a most worth while investment.

FRANK J. COX, M. D.

Diseases of the Nails: By V. Pardo-Castello, M.D. Springfield, Illinois, Chas. C. Thomas, 1941. Pp. 187, illus. Price \$3.50.

In 187 pages there is concentrated knowledge rendering a magnificently illustrated text which, benefiting from a first edition, is an authoritative treatise on diseases of the nails.

Correlating clinical and pathologic considerations in a concise manner, the author has rendered readable and interesting a subject neglected by the average physician. Therapeutically many practical ideas are offered.

It is unquestionably true that most of the nail deformities illustrated are rare to our population, that it is unlikely that many of us will see such examples even in our clinic patients. Yet, this detracts none from the wealth of general knowledge available. Intended for the dermatologist, it is a worthwhile investment for the internist and general practitioner and supplies information unmentioned in the average volume on dermatology.

GORDON McHARDY, M. D.

Fractions and Other Bone and Joint Injuries: By R. Watson-Jones, B. Sc., M. Ch. Orth., F. R. C. S. Baltimore, The Williams and Wilkins Co., 1941. 2d ed. Pp. 724, illus. Price \$13.50.

This book is unusual in that opening chapters do not follow the hackneyed outline used in such texts for years. The first third is devoted to practical generalities. Therein is given startling new observations on the physiology of bone healing, aseptic necrosis, complications of fractures, roentgenologic diagnosis and the like. Some of the conclusions are so obvious and apparently so basically sound, that when seen in the simple unsensational language of the author they appear to be important laws. The first section of the book is full of noteworthy truisms good for teaching and for observing.

He says, "The one and only cause of non-union is failure of adequate immobilization." He develops this theme well, emphasizing the value of uninterrupted prolonged immobilization with use of the extremity while the fragments are immobilized.

The author presents the management of individual fractures not as one telling about a case he had, while scraping the mud off his shoes, but as a skilled author summing up the essence of a tremendous experience during which he has observed accurately and wisely. Thus, the pitfalls as well as positive steps in diagnosis and treatment are given. Less space is given to clinical diagnosis than in previous fracture texts. Reliance on x-ray for diagnosis is amply emphasized by illustrative roentgenograms.

The quality of illustrations is excellent. There are 1040 of them. The roentgenograms are reproduced well. These and frequent line drawings and color plates are well selected. They appear to be used not simply because he had that illustration on file but because it is an excellent illustration of a point well worth illustrating. An innovation is the leaf-covered answer to questions proposed by certain roentgenograms. Under a small leaf on which are questions to be answered, is found a second roentgenogram showing the answer and illustrating an important point most aptly.

This book is excellent. It is new and modern; so modern that many of the old traditionals such as Nelaton's line and Bryant's triangle, the emphasis on the type of injuring force, extensive physiotherapy discussion and the like, are left out. This is one of the two best teaching text on fractures in the English language. For practitioners it may seem even revolutionary and sometimes unbelievable because its rules are not the ones upon which they may have long relied. But they can be accepted as accurate, embodying the modern principles now once again becoming stationary in a different significance, after an almost complete reversal of many of them.

HOWARD MAHORNER, M. D.

The Principles and Practice of Ophthalmic Surgery: By Edmund B. Spaeth, M. D. Philadelphia, Lea and Febiger, 1941. 2d ed. Pp. 886. Price \$10.00.

The second edition of this well-known and useful book represents a complete revision of the original text, is large and contains many new and interesting illustrations.

The table of contents, indices of authors and subjects are arranged in such a manner as to facilitate and expedite reference.

The book deals not only with operative technic

but with the whole background of surgical aspects of ophthalmology. The author is convincing in his belief that satisfactory results in ophthalmic surgery are best obtained by consideration of the individual needs of each patient and selection of the surgical procedure accordingly, rather than by routine procedure.

This text offers excellent reference material to the advanced student in ophthalmic surgery but seems too presumptive in parts to be of the same value to the beginner. For example, in considering anesthesia, the author stresses its importance but fails adequately to describe the various types of anesthesia used in ophthalmic surgery and their indications.

The section of muscles is more complete than that of the first edition; the section on paralytic strabismus is especially improved. The author quotes extensively from White, Peter and Lancaster.

In those sections dealing with reconstructive ophthalmologic plastic surgery the author, through his vast knowledge of this phase of ophthalmic surgery, impressively describes, indicates and illustrates the uses of various types of grafts and flaps. He considers reconstructive ophthalmologic plastic surgery as a specialty within a specialty and, therefore, places it within the domain of the ophthalmic surgeon rather than that of the general plastic surgeon.

Those parts dealing with cataract and glaucoma, which are so important to the general ophthalmologist from the point of sight conservation, are excellently presented. The especial necessity for a thorough knowledge of anatomy, physiology and pathology in this field of ophthalmology is emphasized. Indications for operation and contraindications are clearly stated and complications to be expected are discussed.

Though there is considerable work yet to be done in the field of retinal surgery, the author has presented an excellent review of the subject.

The section on keratoplasty by Castroviejo represents an exhaustive and excellent review of the subject. He discusses advances in this type surgery during recent years in their chronologic order terminating in his own improved technic.

In general, the author has attempted to cover as many of the fundamental factors governing theory, technic, possibilities, probabilities and potentialities in ophthalmic surgery as possible.

Dr. Spaeth is to be congratulated on having given us such an outstanding book on this field of surgery.

GEORGE M. HAIK, M. D.

Lymphatics, Lymph, and Lymphoid Tissue: By Cecil Kent Drinker, M.D., D.Sc., and Joseph Mendel Yoffey, M.D., M.Sc., F.R.C.S. (Eng.). Cambridge, Mass., Harvard University Press, 1941. Pp. 406. Price \$4.00.

Lymphatics, lymph and lymph tissue are thoroughly discussed in this excellent monograph. The authors summarize the most significant published observations made upon the lymphatic system. The presentation emphasizes the functional aspects of the subject, although the morphology and chemistry are well presented. These latter two aspects are especially correlated with the functional nature of the lymph system in health and disease. The relation of the lymphatics to edema, spread of disease, resistance to infection and the like are clearly discussed.

Not only does the presentation offer a good source of information on the subject which is useful to physiologists who are particularly interested in the subject experimentally, but it also contains a great deal of practical information of value to clinicians of all branches of medicine. The presentations make clear the many gaps in our knowledge of the lymphatics and suggest a number of interesting problems for investigation.

This new book on the lymphatics, lymph and lymphoid tissue, is certainly to be welcomed with enthusiasm and should prove to be of considerable value to all physicians actively interested in physiology and medicine.

G. E. BURCH, M. D.

Infantile Paralysis: A Symposium Delivered at Vanderbilt University, April, 1941. New York, National Foundation for Infantile Paralysis, Inc. 1941. Pp. 239.

This new book is composed of a series of six classic contributions on poliomyelitis. The lectures, each a masterpiece by an eminent authority, were planned by the Committee on Education of the National Foundation for Infantile Paralysis with the idea of making available to physicians everywhere a resumé of our present knowledge of this serious and terrifying disease. It contains an immense amount of practical diagnostic and therapeutic material.

It is believed that the approach to the control of infantile paralysis requires a simultaneous attack by many different specialists since it is considered an infectious disease, primarily attacking adolescents, and seriously crippling, in many instances, in its ultimate effects.

The authors collaborating in this volume have produced an excellent piece of work. The material is presented concisely but simply and comprehensively. It is difficult to single out any portion of the book as of special significance. The knowledge provided is invaluable. An excellent bibliography of 575 titles is appended.

In presenting these lectures it is the hope of The National Foundation for Infantile Paralysis

that the work of physicians and health officers may be made less difficult; and that research will be stimulated and continued with renewed vigor and interest, especially as regards this and other virus diseases.

C. P. MAY, M. D.

Essentials of Dermatology: By Norman Tobias, M. D. Philadelphia, J. B. Lippincott Co., 1941. Illus. Pp. 497. Price \$4.50.

Dr. Tobias, in his recently published book, "Essentials of Dermatology," has succeeded admirably in his aim to place at the disposal of the general practitioner and the medical student a handy volume. Brief, but surprisingly complete, it is a comprehensive handbook of dermatology.

Differential diagnosis and diagnostic features have been stressed, since these are of utmost value to those for whom the book was especially designed. A study of the index shows that the diseases are grouped so as to simplify diagnosis and differential diagnosis.

In the chapter on dermatologic therapeutics, proper attention to the foci of infection and the relief of nervous tension are emphasized. Without this, one is apt to be disappointed in the lack of results from local treatment. Also, the use of drugs in weak concentration is stressed. This is shown to be of special importance in cases where there is likelihood of intolerance to the drug. It is a well known fact that most skin lesions respond equally well to the weaker dilutions, and there is less danger of exaggerating the original condition.

Of interest to the specialist is the warning to the general practitioner not to varnish the eruption with one of the many dye medicaments until the diagnosis has been made.

Small and compact, this volume is a worth while addition to the field of dermatology, and one which even the specialist may read profitably.

EARL R. COCKERELL, M. D.

PUBLICATIONS RECEIVED

David McKay Company, Philadelphia: I'm Gonna Be A Father, by Bob Dunn.

C. V. Mosby Company, St. Louis: Immunology, by Noble Pierce Sherwood, Ph. D., M. D., F. A. C. P. Necropsy, by Béla Halpert, M. D. Synopsis of Allergy, by Harry L. Alexander, A. B., M. D. Synopsis of Genitourinary Diseases, by Austin I. Dodson, M. D., F. A. C. S. The Toxemias of Pregnancy, by William J. Dieckmann, M. D.

W. B. Saunders Company, Philadelphia: Arthritis in Modern Practice, by Otto Steinbrocker, B. S., M. D. Surgical Practice of the Lahey Clinic, Boston, Massachusetts. The Medical Clinics of North America, Military Medicine, November, 1941.

The Tilghman Company, New York: Perineopelvic Anatomy, by R. V. Gorsch, A. B., M. D.

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A STUDY OF THE EFFECTS OF COMBUSTION PRODUCTS OF NATURAL GAS UPON PUBLIC HEALTH*

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In presenting this paper I shall avail myself largely of material collected through three main sources: (1) A review of the literature; (2) personal clinical investigations; (3) recent combustion products studies sponsored by the Resources Committee of the West Virginia University.

Since carbon monoxide ranks as the leading hazard among the products of combustion of natural gas and other fuels, the discussion will be limited to the consideration of this gas from the standpoint of a domestic and industrial health problem.

The immediate effect of carbon monoxide in producing acute asphyxiation and death is well known. It is the remote or residual effect occasionally following acute asphyxiation, and those cases of chronic states of ill health resulting from repeated and prolonged exposures that need to be especially emphasized. It was with the hope of establishing more definitely the role carbon monoxide plays in the causation of these delayed or chronic forms that led me to undertake a prolonged course of clinical investigation.

During these investigations 150 patients whose illness could be definitely traced to the effects of the gas were under observation. The incidence among residents in districts where natural gas is the chief source of fuel was found to be higher than among those residing in other districts, and

that the gas affected more individuals in the homes than in the industries. Thus, in the state of West Virginia 80 per cent of those affected by the gas were engaged in non-industrial pursuits, housewives and domestic employees predominating; whereas in Maryland where less gas is consumed for domestic purposes, only 36 per cent were non-industrial. Hence, properly to evaluate carbon monoxide as a health hazard the domestic problem as well as the industrial and the late or secondary manifestations as well as the acute must be considered.

Many investigations have been made with respect to carbon monoxide as an industrial hazard but no systematic clinical survey has been made with respect to the gas as a domestic problem. Fortunately, such a survey was made available through a special fund created for the purpose of studying the clinical aspects and by provision made for the study of the problem from an engineering standpoint. Both features were combined in the combustion product study sponsored by the West Virginia University and assisted by the West Virginia State Department of Health, the West Virginia Geological Survey, the Utilities Gas Companies of West Virginia, and Cities Service Oil Company of New York.

SCOPE OF CLINICAL SURVEY

Careful inquiry was made as to the age, sex, marital status and occupation of the residents of each domicile; the facilities for ventilation, the length of residence in gas-heated homes, the period of possible exposure and the number of hours exposed daily; the state of health of all occupants and the effect upon health incident to change of air, residence or season of the year was ascertained.

*Read before the sixty-second annual meeting of the Louisiana State Medical Society, Shreveport, April 23, 1941.

This initial report was supplemented by a history of symptoms both past and present. Special emphasis was placed on symptoms characteristic of acute asphyxiation as well as those of relatively slow asphyxiation and also on the relation of these symptoms to the time of exposure. As the clinical phenomena are almost entirely subjective in simple or uncomplicated carbon monoxide anoxemia the physical examination yielded little additional information. However, valuable data were obtained in cases accompanied, or followed by demonstrable organic lesions attributed either to the secondary effects of acute asphyxiation or to moderately severe chronic exposure.

As symptoms of acute asphyxiation are well known, they need not be discussed in detail. It is a noteworthy fact that the more severe the gassing the fewer the symptoms, since coma or death soon supervenes. Both may occur almost instantaneously, without premonition. It is in those cases in which the gassing has been less severe, more protracted, and frequently repeated that the greatest variety of symptoms are encountered.

PRELIMINARY STUDIES

In order of frequency the leading symptoms based on an analysis of 150 cases previously studied were: headache, weakness, vertigo, nervousness, dyspnea, paresthesia, muscular twitching, emotionalism, nausea, drowsiness, unsteady gait, neuromuscular and joint pains, tremor, muscular cramps, cough, sweats, vomiting, insomnia, anorexia, precordial distress, vasomotor instability, perversion of taste and smell, speech defect, impairment of hearing, hoarseness, and yawning.

Naturally, all of these symptoms do not occur in the same individual at any given time. The number and variety depend primarily upon the quantity of carbon monoxide in the air and the length of exposure, and secondarily, upon the activity and susceptibility of the individual and the amount of carbon monoxide in the blood, as well as upon many other factors involved. Their significance is enhanced by the fact that the individual has been exposed to gas; that the symptoms developed during the course

of the exposure and that they subsided within a reasonable time in the open fresh air where they were no longer exposed. In the milder cases of short duration such symptoms as headache, weakness, vertigo, numbness, drowsiness, staggering gait, or nausea, abated in fifteen to twenty minutes and the individuals were often completely relieved in several hours; whereas, in individuals daily exposed over periods of weeks or months the symptoms did not subside as promptly. Complete restoration may not take place for days or weeks after the last exposure.

In simple anoxemia from exposure to carbon monoxide, only those symptoms which yield to the replacement of carbon monoxide in the blood by atmospheric oxygen can be ascribed to the gas. Symptoms which persist under the influence of oxygen are either due to some concurrent disease or are manifestations of tissue damage, especially involving the central nervous and cardiovascular systems and are incidental to severe acute anoxemia or to less severe, slow, protracted (chronic) anoxemia.

Table 1 shows the distribution of these cases, and the source of the gas.

TABLE 1
SLOW CARBON MONOXIDE ASPHYXIATION
(Study of 150 Cases)

Distribution of Cases	
West Virginia	96
Maryland	42
Pennsylvania	5
Ohio	4
New Jersey	1
Kentucky	1
Oklahoma	1
<hr/>	
150	
Source of Carbon Monoxide	
Natural gas	91
Illuminating gas	28
Automobile exhaust	19
Automobile and natural gas.....	6
Automobile and illuminating gas.....	2
Coke and coal	3
Blast furnace	1
<hr/>	
150	

PATHOLOGIC PHYSIOLOGY

Carbon monoxide chemically considered is non-toxic. Its injurious action is due indirectly to its extraordinary affinity for hemoglobin because of which the oxygen of the oxyhemoglobin molecule is replaced by carbon monoxide, thus producing a state of anoxemia. The symptoms which arise are due primarily to mere oxygen want and secondarily, to the anoxic lesions produced through oxygen deprivation.

Structures endowed with a rich blood supply, such as the central nervous system and the myocardium, normally utilize more oxygen than those less abundantly supplied; consequently, in states of anoxemia the tissue damage in these organs is relatively more pronounced.

Cerebral congestion and edema account for some of the early symptoms including headache, dizziness, nausea, vomiting, coma and convulsions. The later neuropathologic lesions depending upon degenerative changes cause multiple syndromes. Among these encephalitis, usually of the Parkinsonian type, is one of the most outstanding.

Symptoms suggestive of multiple sclerosis, such as tremor, scanning speech, spasticity and sphincter disturbance, have also been reported. Ophthalmoplegia and paralysis of the hemiplegic and monoplegic types have been noted. Mental and emotional disturbances ranging from memory defects and mild confusional states to advanced forms of psychosis have been described.

Other neurologic manifestations include cerebral thrombosis, multiple neuritis, or tetany. Among the ophthalmologic manifestations are amblyopia, anisocoria, retinal edema, diplopia and neuroretinitis.

The effects of carbon monoxide are primarily manifested in the vascular system. There occurs dilatation of the peripheral vessels, slowing of the blood stream, increased permeability of the vessel walls with hemorrhage, perivascular infiltration and edema. Small punctiform hemorrhages are characteristic and may occur in any organ of the body. Arterial spasm, thrombosis and gangrene may develop. In the heart there is a predilection for lesions to

occur in the papillary muscles of the mitral valves and in the wall of the left ventricle. Coronary thrombosis has been observed clinically and at autopsy. Associated lesions of infarction and softening lead to cardiac dilatation and congestive heart failure.

CLINICAL MANIFESTATIONS

In the preliminary studies, which comprised a series of 150 cases, the symptoms have been grouped according to special domains; the most important are the central nervous, the neuromuscular and the cardiovascular systems. Most of the symptoms are characteristic of simple anoxemia. Others are manifestations of some organic lesion of the central nervous system, including encephalitis, epilepsy, cerebral thrombosis, multiple sclerosis, and tetany. Neuromuscular and joint pains are quite common and painful spasmodic contraction of the muscles of the leg and tendons of the toes is fairly characteristic; likewise spasm of the involuntary muscles, especially of the sphincter muscles of the gastrointestinal tract. A significant symptom is fibrillating bundles of muscle fibers which occurred in one-third of the cases, usually in the simple uncomplicated chronic forms. Table 2 shows the relative frequency of encephalopathies occurring in individuals exposed to carbon monoxide, as compared to the average incidence compiled from the hospital records and Diagnostic Clinic.

TABLE 2
INCIDENCE OF CARBON MONOXIDE
ENCEPHALOPATHIES

Hospital	Admissions	Encephalitis	Epilepsy	Tetany	Multiple sclerosis	Ratio
	83,685	47	...	..	..	1-1819
Union .....	.....	..	101	..	..	1-828
Memorial* .....	.....	..	...	4	..	1-20921
	.....	...	...	..	24	1-3487
	8,112	41	...	..	..	1-198
Diagnostic .....	.....	..	55	..	..	1-1475
Clinic** .....	.....	..	...	6	..	1-1352
	.....	..	...	..	6	1-1352
Carbon	150	13	...	..	..	1-12
Monoxide .....	.....	..	9	..	..	1-17
Group .....	.....	..	...	2	..	1-75
	.....	..	...	..	3	1-50

*Union Memorial Hospital is a general hospital and admits all classes of patients. The Diagnostic Clinic is devoted chiefly to internal medicine.

**Exclusive of carbon monoxide cases.

Symptoms referable to the cardiovascular system ranked second to the central nervous and neuromuscular systems. The most important findings in this group were precordial pain, dyspnea, palpitation, arrhythmia, cardiac hypertrophy, anginal attacks, and coronary thrombosis. In several instances, angina pectoris occurred only during periods of exposure to the gas. Prompt and complete cessation of attacks followed change of residence or improvement in heating conditions. There is a gradual increase in the literature of reports of cases of coronary thrombosis, following exposure to carbon monoxide; the amount of gas need not be sufficient to produce unconsciousness. These studies showed that the effect of prolonged exposure had a tendency to lower the blood pressure and to slow the pulse rate.

Gastrointestinal symptoms such as nausea, vomiting and anorexia are common. On account of cardiospasm, pylorospasm, and epigastric pain, symptoms which are often associated with food ease and hunger pain, ulcer may be suspected. There were seven of these so-called "pseudo ulcer" cases in this group in which complete studies failed to demonstrate an active ulcer. Several of these patients who had failed to respond to ulcer treatment were promptly relieved by correcting heating conditions in the home or by complete change of environment. In five other instances a definite diagnosis of ulcer was made. Whether the exposure to gas has an etiologic relation to the ulcers is problematic. Further studies are necessary.

In the urogenital domain, bladder disturbances, especially nocturia and dysuria, were not infrequent. Albuminuria occurred in 30 patients; in only five was it associated with casts. Glycosuria which is frequently observed in acute asphyxia, occurred in 18. Hematuria also occurs more frequently in acute asphyxia. In regard to menstrual function, no noteworthy symptoms were observed. Impotence was the chief complaint in several patients.

The ophthalmologic findings are important, especially with respect to their rela-

tion to lesions of the central nervous system. They were especially significant in cases associated with encephalitis. Amblyopia was usually transient and occurred during periods of, or immediately following, exposure to gas. Cases simulating exophthalmic goiter with symptoms of hyperthyroidism, including exophthalmos and positive von Graefe, occurred in the series. However, there was only one instance of true toxic goiter with basal metabolism increased above normal.

METABOLISM

Metabolic studies showed a decided trend to lowering of the basal metabolic rate, increase of fasting blood sugar, and a slight decrease of total blood cholesterol. The only instance among 75 patients examined showing a basal rate above normal was that of a patient with exophthalmic goiter.

The total blood cholesterol in 14 patients examined was normal in nine, subnormal in four and elevated in one case.

BLOOD

In this group of individuals, most of whom lived indoors in a vitiated atmosphere, many presented symptoms suggestive of anemia; namely, headache, dizziness, weakness, palpitation, dyspnea, or paresthesia, although the blood showed an increase in hemoglobin and red cells. The increase in hemoglobin was relatively less marked than the increase in the red cells. No special change was noted in the morphology of the red cells and no characteristic changes were noted in the white cells.

A more detailed description of the clinical aspects of carbon monoxide anoxemia will be found in my several published articles.

SUMMARY OF ENGINEERING SURVEY

In 125 homes and shops investigated, 784 appliances were tested by S. M. A. carbon monoxide detector for the generation of carbon monoxide. In 78 of the premises inspected, one or more appliances were found defective in that they produced carbon monoxide. Twenty-one per cent of all appliances examined and tested were discharging carbon monoxide into the room. The amount discharged was 300 or more parts per million (p.p.m.) in 10 per cent;

750 or more p.p.m. in 5 per cent, and 1500 or more p.p.m. in 3 per cent.

Seventy-eight per cent of the side arm heaters, 33 per cent of the radiant type heaters, and 27 per cent of the kitchen type ovens generated carbon monoxide. Practically every gas plate and range burner generated carbon monoxide when the flame impinged on the bottom of a cold vessel.

The advantage of proper venting was well illustrated by the fact that 26 per cent of the appliances not vented were discharging carbon monoxide into the room, whereas, only nine per cent of those vented were discharging carbon monoxide. Seventy-four per cent of all appliances were not vented.

This engineering survey was made under the direction of Edmond T. Roetman of the West Virginia Bureau of Industrial Hygiene.

CLINICAL SURVEY

During the survey, January, February, and March, 1940, the health of 279 individuals who were living under the environmental conditions disclosed by the engineering investigation was studied. Among these 142 were asymptomatic as far as the effect of carbon monoxide was concerned. One hundred and thirty-seven gave a history of either existing or pre-existing symptoms suggestive of carbon monoxide anoxemia. In 138 instances, an odor of gas was detected either in the home or in connection with their respective occupations. Sixty-two were exposed to gas in both the home and in their occupation. Thirty-six slept during cold winter nights in rooms with gas burning in open heaters which were usually unvented. Others slept with gas burning in adjacent rooms with communicating doors open. Seventy-five definitely stated that their health was better in summer than in winter, and 71 that they felt better when outdoors than indoors. Among the latter, 58 were in the habit of going outdoors into the fresh air or opening the windows for the sake of getting relief from their symptoms. There were only 13 who considered their health better in winter than in summer, and seven who stated that

they felt better indoors than outdoors. These latter groups comprised chiefly the aged and chronic invalids of various types and several who worked continuously summer and winter at the gas wells.

This survey was made under the direction of Dr. George M. Suter, of Baltimore.

For the purpose of clinical discussion, the cases will be classified into two major groups:

1. *Non-anoxemic or asymptomatic group*: Cases without a history of the characteristic symptoms of carbon monoxide anoxemia.

2. *Anoxemic or symptomatic group*: Cases with a history of the characteristic symptoms of carbon monoxide anoxemia.

NON-ANOXEMIC OR ASYMPTOMATIC GROUP

This group may be subdivided on the basis of whether or not blood examinations were made for carbon monoxide saturation. The engineers tested all gas appliances in each home investigated for the escape of carbon monoxide, but in the beginning of the survey, tests for carbon monoxide in the blood were only made in those occupants who manifested symptoms. In this subgroup, there were 101 individuals who had never experienced symptoms attributable to the gas and for that reason no blood determinations for carbon monoxide were made.

In the second sub-group comprising 38 individuals, tests were made for both escaping carbon monoxide from defective gas appliances and for carbon monoxide in the blood. This group may be further subdivided:

(a) Those who lived in an atmosphere in which the maximum carbon monoxide produced from gas appliances (gas burning at the customary rate) did not exceed 50 parts per million (p.p.m.) and whose blood did not show the presence of carbon monoxide (15 cases).

(b) Those which showed a maximum of 100 p.p.m. of carbon monoxide from defective appliances and less than 5 per cent in the blood (eight cases).

(c) Those which showed a maximum of 250 p.p.m. from defective appliances and from 5 to 8.7 per cent in the blood (16 cases).

There were no cases with a blood saturation of more than 8.7 per cent who did not give a history of periodic symptoms of anoxemia.

In this group of 142 asymptomatic cases, there were 62 instances in which the engineers failed to detect any gas discharging from appliances with the burners regulated for usual consumption. In 78 cases with the burners similarly regulated, the quantity of carbon monoxide produced did not exceed 250 p.p.m. However, when the gas was turned on to full capacity for the particular appliance, higher readings were often obtained; in some instances as high as 1500 p.p.m. were recorded. The absence of symptoms under these exceptional circumstances was attributed to the location of the appliances, as for example, a hot water heater in the basement or a gas heater in an unoccupied bedroom.

There is a non-anoxemic sub-group with symptomatic manifestations of unrelated diseases. This group represents a number of individuals who did not give a history or exhibit any of the usual symptoms of carbon monoxide anoxemia but presented symptoms ascribed to other disease conditions. Included in this list were three cases each of anemia and hypertension, two each of arteriosclerosis and menopause, and one each of myocarditis, angina pectoris, congenital heart disease, asthma, nephritis and vesical calculus.

ANOXEMIC OR SYMPTOMATIC GROUP

This group may be divided into three sub-groups: (a) Simple carbon monoxide anoxemia; (b) carbon monoxide anoxemia with associated co-existing diseases; (c) carbon monoxide anoxemia with complications and sequelae.

Simple Carbon Monoxide Anoxemia: Of the 137 patients presenting symptoms, the majority were classified as simple uncomplicated anoxemia. The diagnosis was based on the following criteria: (1) That they were definitely exposed to gas; (2) that in severity the symptoms were proportional to the amount of gas in the air and the duration of exposure, or both; (3) that the symptoms completely subsided when the in-

dividuals were no longer exposed; (4) that corroborative evidence of the presence of carbon monoxide was established whenever possible by an analysis of the air and blood; (5) and finally by the exclusion of any concomitant disease.

The symptomatic manifestations can conveniently be described under the following headings: (1) Central nervous and neuromuscular; (2) cardiovascular; (3) gastrointestinal; (4) urogenital; (5) ophthalmologic; (6) hematologic.

Central Nervous and Neuromuscular Manifestations: The outstanding symptoms of carbon monoxide anoxemia are referable to the central nervous and neuromuscular systems. In order of frequency they conform closely to those obtained in a series of 150 cases included in the preliminary studies. Headache, weakness, vertigo, nervousness, drowsiness, paresthesia, unsteady gait and muscular fibrillation in both instances were among the leading symptoms and occurred in a significant number of cases.

Other symptoms which occurred relatively frequently in the simple form were tremors, sweats, insomnia, fears and other emotional upsets, impairment of memory, and speech defects. In the most severe and acute forms, syncope, semi-coma and coma were noted. The headache was usually described as a feeling of pressure or band-like constriction sometimes accompanied by a throbbing sensation.

Weakness, though general, was most noticeable in the lower extremities; in conjunction with vertigo, it contributed to the disturbance of gait which was often of a staggering type with a tendency to fall. These symptoms often preceded syncopal attacks. An interesting phenomenon was fibrillation of muscular fasciculi, of which these individuals often complained. Another common complaint was numbness and tingling, especially of the extremities. Emotional disturbances, particularly fear, were observed in a number of cases. Some suffered from drowsiness, others from insomnia.

Fifty-nine individuals complained of neuromuscular and joint pains (myalgia, ar-

thralgia) with principal involvement of the extremities. Forty complained of cramps in the legs, chiefly in the calf muscles, and in 23 the feet and toes were affected by painful spasmodic contractions. In only two patients did cramps occur in the fingers.

All of the symptoms enumerated may occur in this group of simple, uncomplicated carbon monoxide anoxemia and will disappear within a short time after carbon monoxide is eliminated from the blood.

Cardiovascular Manifestations: The symptoms referable to the cardiovascular system were comparatively few, the leading ones being dyspnea, palpitation and cough. Other symptoms which occurred less frequently were persistent yawning, precordial distress and asthmatic wheezing. These symptoms are either primary and functional in character owing to simple anoxemia, or secondary owing to organic lesions of the myocardium. The latter may be purely incidental and unrelated, or they may be residual manifestations or complications of an acute or chronic anoxemia.

Gastrointestinal Manifestations: Among these symptoms, nausea, vomiting and anorexia predominated. Other symptoms included pyrosis, pain in the epigastrium, and constipation. A number simply complained of indigestion.

Urogenital Manifestations: The only noteworthy findings were nocturia, albuminuria and glycosuria. The latter is often transient in character but may become permanent. There were five cases of true diabetes in the series, one of which developed after an attack of encephalitis. Impotence, which is an occasional complaint, occurred in three instances.

Ophthalmologic Manifestations: Among the common symptoms which occurred in the uncomplicated form were dimness of vision, transient blindness, "burning of eyes," twitching, eyelids and muscae volitantes. Other manifestations which occurred in severer forms as complications or sequelae, were diplopia, scotoma, nystagmus, anisocoria, and retinal vascular changes.

Carbon Monoxide Anoxemia with Co-existing Diseases: In this group, the clinical syndrome of carbon monoxide anoxemia was associated with symptoms referable to other diseases such as nephritis, chronic cholecystitis, duodenal ulcer, spastic colitis, pyelitis, chronic prostatitis, cystitis, appendicitis, bilateral cataract, arteriosclerosis and hypertension. These conditions occurred as separate and distinct entities and were not ascribed to the effects of the gas.

Carbon Monoxide Anoxemia with Complications and Sequelae: In the entire series of cases studied there were ten instances in which a history was obtained of syncopal or fainting attacks, with transient loss of consciousness. There were four with coma following acute asphyxiation. One patient was described as having been semi-comatose. In the neurologic domain, the most vulnerable to the action of carbon monoxide, there occurred two cases with well-defined symptoms of encephalitis, one of meningo-encephalitis, one of multiple sclerosis, one of cerebral thrombosis, one of mild epileptiform seizures and four of peripheral neuritis. Illustrative of this group is the following case.

CASE NO. 1

A male, aged 29, tinner, had been exposed to gas for the past three years in his shop, and while repairing furnaces, worked on an average of eight hours a day. In the winter of 1937 he developed symptoms of multiple sclerosis, began to complain of dimness of vision, vertigo and ataxia. Shortly afterwards, while working in a basement heated by a "salamander," he became asphyxiated and remained unconscious for about one hour. Three weeks after recovery from the acute symptoms he became totally blind. His sight returned in a week but it has never been restored to normal. Neurologic manifestations soon developed, including bi-temporal disk pallor, diplopia, slight nystagmus, mild intention tremor, ataxia, heightened reflexes, bilateral Babinski, ankle clonus, slight adiadochokinesis and loss of abdominal and scrotal reflexes. Among the outstanding symptoms were headache, dysarthria, asthenia, vertigo, stupor, memory defect, vague hallucinations coupled with fear, paresthesia, vesico-spasm with loss of bladder control and impotence. The blood count was normal and Wassermann was reported negative.

A specimen of blood taken four hours after exposure showed a carbon monoxide concentration of 17.8 per cent. Heaters tested in the home showed only 50 p.p.m. of escaping gas. The chief source of

gas was from furnaces he was repairing in other homes.

BLOOD STUDIES

These studies were undertaken with the object of correlating the blood picture with the clinical history and the carbon monoxide content of the blood in order to determine whether the amount of carbon monoxide in the blood could have any definite pathologic or diagnostic significance.

An analysis suggests a relation with respect to the effect of carbon monoxide upon the hemoglobin and red cells. Both show a tendency toward an increase proportional to the amount of carbon monoxide in the blood. Eighteen per cent showed a hemoglobin content of 90 per cent or more in cases without demonstrable carbon monoxide in the blood, whereas 28.3 per cent with variable amounts of carbon monoxide in the blood showed 90 per cent or more hemoglobin.

The effect upon the red cell count is even more pronounced. Assuming 4,500,000 to be a fair average count for normal individuals living mostly indoors, an analysis of 115 consecutive cases shows a very decided trend to erythrocytosis proportional to the increase of carbon monoxide in the blood as follows: 42 per cent showed no carbon monoxide in the blood; 84 per cent showed 0-10 per cent carbon monoxide blood saturation; 78 per cent showed 10-36.6 per cent carbon monoxide blood saturation.

The converse also holds true. States of anemia with 4,000,000 or less red cells occurred in: 27 per cent with no carbon monoxide in the blood; 9 per cent with 0-10 per cent carbon monoxide blood saturation; 0 per cent with 10-36.6 per cent carbon monoxide blood saturation.

The foregoing figures are based on the total number of cases studied. The results are somewhat modified by dividing them into two separate groups; namely, those individuals exposed only to carbon monoxide gas in the home or shop, and those who in addition were exposed to natural gas at the wells where they were employed.

In the former "carbon monoxide group" (111 cases), 16 per cent, had over 90 per cent of hemoglobin. In the latter "natural

gas group" (22 cases), 76 per cent, had over 90 per cent of hemoglobin.

Likewise in the former ("carbon monoxide group") 51 per cent had a red cell count of over 4,500,000 and in the latter ("natural gas group") 95 per cent had over 4,500,000 red cells.

Noteworthy changes were also found in the morphology of the white cells in those exposed to raw, natural gas. An outstanding feature was the presence of an eosinophilia. In 22 cases the differential counts averaged 6 per cent, the highest being 17 per cent, whereas in 99 cases of the carbon monoxide group the average was 1 1/3 per cent. The following case is an example of the latter group exposed to natural gas:

CASE NO. 2

A white male, aged 49, engineer, for the past eleven years was exposed to natural gas on an average of eight hours daily, working in a compressing plant. He was also exposed somewhat to gas in the home, having slept with gas burning in his room in cold weather. He was "gassed" several times with natural gas in his occupation. After two years' exposure he became weak, nervous and irritable, and for four months suffered with headache, vertigo, ataxia, transient blindness, tremors and pain in the back and neck. His blood pressure was elevated. Physical examination was negative except for moderate hypertension, mild arteriosclerosis and a carbon monoxide blood saturation of 2.7 per cent.

Blood examination showed 108 per cent hemoglobin; 5,020,000 red cells and a differential count of 47 per cent polymorphonuclears, 35 per cent lymphocytes, 17 per cent eosinophiles and 1 per cent basophiles. The red cells and platelets were reported normal.

Additional records of clinical cases appear in the official report of the Survey, which also contains a comprehensive review of the pathologic and clinical aspects of carbon monoxide anoxemia, with references to the literature on the subject.

DISCUSSION

Dr. H. Randolph Unsworth (New Orleans): Dr. Beck has mentioned several things about which I would rather like to comment. I am of the opinion that an interpretation of what happens to a central nervous system is incomplete without spinal fluid investigations, and especially in reference to multiple sclerosis. The second thing of interest is the psychotic manifestations. Were they temporary or permanent? I am wondering if the hemolytic destruction caused by the chronic gas toxemia showed blood changes that could have

suggested a combined sclerotic neurologic clinical picture?

Dr. Oscar W. Bethea (New Orleans): Dr. Beck has requested that I discuss his paper.

I have followed the work of Dr. Beck in his study of carbon monoxide for several years and have been much impressed with the extent of his investigation and the excellence of his presentations.

I agree with him that cases of acute poisoning are comparatively rare but I do not believe that we can estimate the number of subclinical cases; that is, those with impaired well-being through the long continued exposure to small amounts of this gas.

I get the impression from recent reports that the use of gas heaters burning in the home or working quarters accounts for a large percentage of this group.

I believe that Dr. Beck is doing an important work and should receive unlimited encouragement not only in carrying forward his investigation but in disseminating his findings among those most concerned.

Dr. Beck (In closing): In regard to Dr. Unsworth's inquiry concerning multiple sclerosis, I should like to call attention to some studies in asphyxia which were published in U. S. Public Health Bulletin Number 211. The article contains many illustrations showing lesions of the central nervous system in a series of experiments on dogs subjected to comparatively slow asphyxia from carbon monoxide. Among the injurious effects produced were edema of the brain, perivascular infiltration, hemorrhage, cystic degeneration and scar formation. There are many other experimental proofs as well as autopsy findings showing pathologic changes in the brain, meninges and spinal cord.

In regard to symptoms of multiple sclerosis, the case cited in the text of the paper, which time did not permit me to read, is an example.

Among the 279 patients clinically investigated during the recent survey, a certain number showed definite evidence of neuropathologic changes as well as cardiovascular disease.

My chief interest has been in the study of individuals with chronic ailments who were exposed daily to carbon monoxide, and who have failed to respond to any treatment as long as they were subjected to the gas. I have found ample evidence in these studies to warrant the conclusion that carbon monoxide may produce chronic lesions. The complete report, which will be published later, contains numerous references in support of this view. I have not added much that is new, but have been able to confirm most of the claims made in these published reports.

The object of the survey was to study the relation of the combustion products of natural gas to public health, from both the engineering and clinical standpoint. The results show that carbon monoxide from improper combustion of natural

gas, chiefly through defective heating appliances, is often responsible for chronic states of ill health, and constitutes a problem which needs further study and investigation.

MYOCARDIAL DYSFUNCTION DUE TO VITAMIN B₁ (THIAMIN HYDRO- CHLORIDE) DEFICIENCY*

ALLAN EUSTIS, M. D.
NEW ORLEANS

This syndrome is usually referred to as "beriberi heart," but inasmuch as it occurs in deficiency diseases other than beriberi, this is manifestly a misnomer. However, it is a constant accompaniment of beriberi, and a short résumé of the present knowledge of this subject may not be amiss.

In the latter part of the 19th century Takaki was able practically to eliminate beriberi—a common occurrence—from the Japanese Navy, by adding more meat and vegetables to the sailors' diet and by replacing the customary polished rice in part by wheat and barley. This led to the investigations of Christiaan Eijkman¹ in the Dutch East Indies (1897), who concluded that beriberi resulted from the continuous consumption of polished rice, leading later to his discovery of an experimental disease closely simulating human beriberi, which he called "polyneuritis gallinarum," produced in birds on an exclusive diet of polished rice and relieved promptly by forced feeding of the birds with rice polishings. He suggested a toxic basis for the disease, but his successor, Gerritt Grijns (1901) was able to correct this toxin theory by showing that beriberi was caused, not by a poison, but by a deficiency of an essential nutrient in the diet contained in the discarded cortex. Fresh interest in the etiology and cure of beriberi was aroused by the publications of Hopkins (1906), Fletcher (1909), Fraser and Stanton (1909), and others. Finally, Casimir Funk² (1911) isolated from rice polishings a crystalline substance which promptly relieved the symptoms of "polyneuritis gallinarum." In-

*Read before the sixty-second annual meeting of the Louisiana State Medical Society, Shreveport, April 22, 1941.

asmuch as he was able to demonstrate the presence of an amine group in the substance and on account of its life sustaining qualities he called it "vitamine." He suggested that besides beriberi, scurvy, rickets and pellagra were due to deficiency of vitamins, and that cure of these diseases would depend upon the discovery of vitamins similar to his anti-beriberi vitamin. While McCollum and others questioned the purity of Funk's "vitamine" and were able to prove that other essential food factors were certainly not amines the term vitamin has been accepted as a generic term to denote these essential food factors without any implication that they are even remotely allied to amines. In 1921, at the suggestion of Drummond the "e" was dropped from vitamin and the present terminology universally accepted.

The nutritional studies of Osborne and Mendel³ and of McCollum and Davis⁴ resulted in the acceptance of a fat soluble vitamin A and a water soluble vitamin B. "This simple primary concept of the unique nature of vitamin B was soon replaced by one more intricate, for evidence soon accumulated to show that this vitamin B was not a single substance but a complex containing a heat-labile growth-promoting component requisite for the prevention of polyneuritic symptoms in rats and pigeons (vitamin B₁) and a heat-stable growth-promoting component necessary for the prevention of dermatitis in rats."⁵ More recently (1937) Cline and Williams⁶ were able to identify vitamin B₁ as thiamin chloride and were able to synthesize the substance; today, most of the pharmaceutical houses market synthetic thiamin chloride, which has been accepted by the Council on Pharmacy and Chemistry of the American Medical Association as identical with vitamin B₁.

I first became interested in beriberi and vitamins in 1912 while collaborating with Wellman and Bass⁷ in research on the relation of Louisiana rice to beriberi. About this time I saw a case of fatal beriberi at the City Hospital for Mental Diseases, with Hummel; at autopsy, by Duval, I was

struck by the flabby condition of the heart, dilatation of which was designated by Duval as the cause of death. The impression made upon me by this case has given strength to my belief, which I have taught for many years, that a balanced diet containing sufficient vitamins is essential in the treatment of all diseases. I now believe that the favorable results reported by me⁸ from time to time, in the treatment of myocardial insufficiency have been due to this fact as much as to other measures which I have advocated.

However, case 1, diagnosed by Tripoli as "beriberi heart," and seen by me in consultation, impressed me with the idea that this syndrome is probably more common than we realize. Case 2, which may be classed as a "guinea pig" case, convinced me of this fact, and is the reason for this article. Scott and Herrmann,⁹ in 1928, in an outbreak of beriberi in this state, reported the cardiac manifestations, but the careful observations of Alsmeer and Wenckebach¹⁰ in 1929, and, later the publication by Wenckebach¹¹ of his monograph, "Das Beriberi - Herz" (1934), gave the first exact knowledge of the symptomatology and pathologic findings in so-called beriberi heart. Wenckebach lists the symptoms as: (1) Cardiac enlargement; (2) precordial and apical systolic murmur, sometimes also diastolic murmur, increased by exertion; (3) throbbing pulsation over the precordium and a bounding pulse in the great arteries; (4) distended neck veins and enlarged and painful liver. At autopsy there was dilatation of the right side of the heart, and an interstitial edema of the heart muscle was universally found.

Wenckebach was impressed by the absence of any significant change in the electrocardiogram. Weiss and his co-workers,¹² as well as Strauss,¹³ Langeron,¹⁴ Winans¹⁵ and others, have added to our knowledge so that today the characteristic symptoms and signs may be accepted as follows: Dyspnea on exertion, with tachycardia; palpitation with gallop rhythm; prominent cardiac and epigastric pulsations; bounding peripheral pulses, and edema out of all proportion to

the demonstrable cardiac dysfunction. The cardio-respiratory test at this time is of inestimable value in demonstrating myocardial inefficiency. The skin is often flushed and warm. The heart is usually enlarged, but is sometimes normal in size. Venous pressure is usually elevated. There may be abnormal electrocardiograms, the chief abnormalities being change in direction of T waves, tachycardia or prolonged Q-T interval. Anginoid pains may also be complained of. There is usually scant excretion of concentrated urine, not affected by fluid intake, and which promptly changes to polyuria on treatment with thiamin hydrochloride. Fatal cases result from dilatation of either the right or left side of the heart, but usually from right-sided failure. Mild cases may present edema of ankles only, and dyspnea only on exertion.

TREATMENT

The results of treatment are spectacular, which is well demonstrated by case 2. Thiamin hydrochloride in doses of 10 mg. to 60 mg. daily, administered parenterally, depending upon the severity of the case, will often show improvement within a few hours, this being manifested by less dyspnea, lessened edema, and increased excretion of a dilute urine. After the acute symptoms are overcome the vitamin may be administered by mouth in 3 mg. doses three times daily, and a potent diet prescribed. Thiamin does not replace other measures of sustaining cardiac function, and it is questionable if it has any effect at all on other forms of heart disease; although Jones and Sure,¹⁶ in a study of 30 cardiac patients, (14 arteriosclerotic, nine hypertensive, seven myocardial), found that less medication was needed to sustain the heart when thiamin was administered than is observed in the general run of cases. Inasmuch as it is non-toxic, thiamin hydrochloride certainly should be administered in all cardiac cases. Weiss¹² stated as early as 1937 that many cases of myocardial heart failure are due to an unbalanced diet, especially one deficient in the B complex, particularly B₁. Many obscure cardiac conditions resemble the "beriberi heart" and the symptoms clear up within 24 hours after the adminis-

tration of crystalline vitamin B₁, along with routine measures. Prophylactic treatment should interest the medical profession more than at present, and should be effective. Cowgill¹⁷ has developed a formula for determining the vitamin B₁ requirement of man, but I am inclined to agree with Sherman¹⁸ that if half the food calories are derived from milk, eggs, fruits, vegetables and un-denatured cereals, an ample supply of vitamin B₁ will be provided. It must be borne in mind that absorption of the vitamin is as important as the food content, and also, that alcohol and a high carbohydrate diet increase the thiamin requirement. The nuclei of cells are especially rich in vitamin B₁, which explains why whole cereals, green vegetables, liver, kidney and sweetbreads are more potent than muscle fiber.

The vitamin is soluble in water and is readily oxidized by heating in contact with air, so that the proper cooking of food is just as important as the vitamin B₁ content. The water drained from green vegetables will often contain more vitamin B₁ than the cooked vegetable, and this fluid should be utilized in making soups and gravies, as well as in cooking meats.

Considerable chemical research is being conducted in an effort to determine the absolute content of vitamin B₁ in various food stuffs, and the thiochrome test has assisted considerably, but at present we must rely upon the results obtained by feeding experiments on lower animals for our knowledge of vitamin B₁ content of foods.

The chart on the following page will be of material assistance however.

CASE NO. 1

R. T. McD. was admitted to Touro Infirmary on May 3, 1939, and discharged May 12; readmitted June 17, 1939, discharged June 25, on the service of Dr. Tripoli. This patient was a white male, 39 years of age, who complained of dyspnea and edema of the ankles. He admitted excessive drinking of alcohol. The heart was enlarged on percussion, transverse diameter measuring 16 cm.; no murmurs audible. Pulse 120; blood pressure in recumbent position 145/90; in sitting position 110/70. Response to cardio-respiratory test very poor. Venous pressure—230 mm. water. Electrocardiographic tracing showed QRS wave slurred in the second lead and T wave low in

FOOD SOURCES OF THIAMIN (VITAMIN B₁)

TYPE OF FOOD	EXCELLENT SOURCES	GOOD SOURCES	FAIR SOURCES
Animal products.	Lean pork, chicken, kidney, liver.	Egg yolks, brains, lean beef, lean mutton, fish roe, codfish, sardines, whiting.	Fresh milk (whole or skim).
Vegetables.	Green peas, green lima beans.	Sweet corn, brussels sprouts, cauliflower, cabbage, mushrooms, spinach, turnip greens, water cress, garden cress, lettuce, collards, kale, onions, leeks, tomatoes, wax and green beans, parsnips, beets, carrots.	Turnips, broccoll, kohlrabi, eggplant.
Fruits.		Prunes, avocados, pineapples, oranges, grapefruit, tangerines, dates, figs, plums, pears, apples, cantaloupes.	B a n a n a s, watermelons, raspberries, blackberries.
Seeds.	Wheat germ, corn germ, rye germ, rice polishings, wheat bran, rye, barley, brown rice, peanuts, soy beans, cowpeas, navy beans, dried peas.	Hazelnuts, chestnuts, Brazil nuts, walnuts, almonds, pecans.	

second lead and sharply inverted in third lead, with "definite evidence of myocardial disease." On May 3, fluoroscopic examination of the chest revealed, "a definite increase in the transverse heart diameter and a moderate diffuse dilatation of the thoracic aorta." Rest in bed, with digitalis, full diet, thiamin chloride and diathermy to the heart gave prompt relief of symptoms. Fluoroscopic examination of the chest on May 6, showed the heart diameter to be within normal limits, measuring 14.4 cm. with slight diffuse dilation of the thoracic aorta. He was discharged May 12, 1939, symptom-free, but with a poor response to the cardio-respiratory test, which denoted myocardial insufficiency was still existent. Accordingly, a discharge diagnosis was made of cardiac insufficiency and arteriosclerotic heart disease. On re-admission I saw him in consultation with Dr. Tripoli, from whom I learned that the patient had returned to his alcoholic tendencies and had been subsisting almost exclusively on meat and potatoes. He was in the identical condition in which I had first seen him and his response to the cardio-respiratory test was very poor. The electrocardiographic tracing June 20, 1939, showed QRS slurred in second lead and T wave flat in first and second leads, and inverted in third lead, with "definite myocardial disease."

Laboratory data: Urine examination negative. Red blood cells 4,600,000; white blood cells 7000; hemoglobin 80 per cent; S. M. 34, L. M. 6; N. 58, E. 2; hematocrit 41 per cent.

Venous pressure was 120 mm. of water, and a poor response to the cardio-respiratory test on June 19. Dr. Tripoli put him on 18 mg. of thiamin intramuscularly daily, with two capsules of vitamin B complex three times a day and a carefully controlled diet to furnish all vitamins. The improvement was spectacular and his response to the cardio-respiratory test was normal on June 23. He was discharged with a diagnosis of "beriberi heart." I did not see him again until October 21, 1940, during which time he had an electrocardio-

graphic examination made in Houston, which was pronounced normal. However, he now had a return of dyspnea and edema of the ankles and his response to the cardio-respiratory test was very poor. He had not taken any vitamins for several months and was drinking excessively and eating mostly meat, or fish and potatoes. He was instructed to resume the thiamin which Dr. Tripoli had prescribed and to moderate his intake of alcohol. His next examination on January 15, 1941,

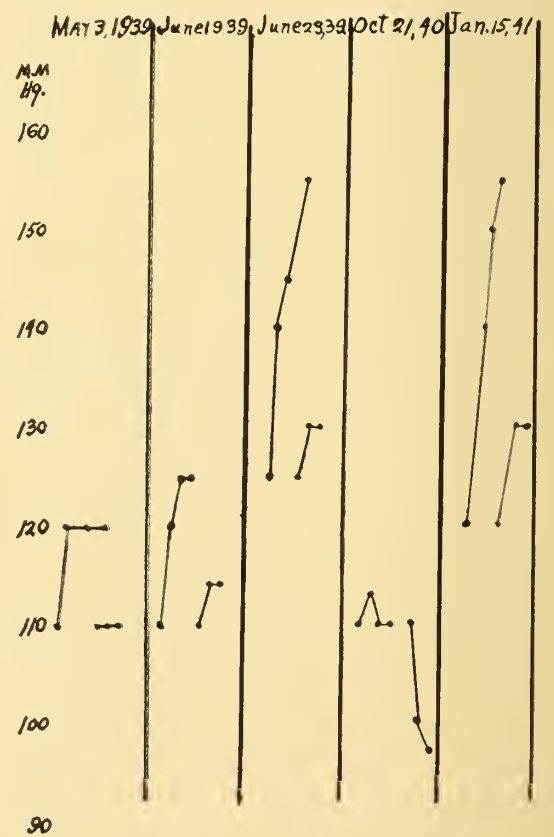


Fig. 1. Cardio-respiratory test of R. T. McD.

revealed an apparently normal heart with a normal response to the cardio-respiratory test.

CASE NO. 2

J. T. D., a white male, 54 years of age, was admitted to Touro Infirmary January 19, 1941, on the service of Dr. Hilliard Miller. He was discharged, after appendectomy, on January 31, 1941. I had observed this patient at frequent intervals since 1929. At no time had he shown any evidence of myocardial disease, but he had had a chronic appendix which caused minor digestive disturbances. However, since March, 1940, he had been having increasing pain in the epigastrium and was finally persuaded to allow Dr. Miller to remove the appendix. Prior to admission he had been living on a very restricted diet of milk, crackers and denatured cereals forming his principal food; not indulging in green vegetables on account of fear of flatulency. He was operated on January 21, 1941, when a chronic appendix was removed. Twenty-four hours after operation he developed pain across the chest, dyspnea and extrasystoles. An electrocardiographic tracing was made, showing QRS slurred in leads 2 and 3, and frequent premature ventricular contractions. The opinion was, "definite electrocardiographic evidence of myocardial disease." To test the actual effect of thiamin chloride, on January 24, he was placed on a low protein diet; no meat, fish, eggs or milk, and 3 mg. of thiamin chloride was given by mouth three times a day. An electrocardiographic tracing made January 29, 1941, showed QRS slurred in lead 3, and T wave flat in lead 3. There were no premature contractions and lead 4 showed normal variation. The opinion was that there was no evidence of myocardial disease. He was discharged on January 31, 1941, and has had no complications. A cardio-respiratory test run on him February 11, 1941, showed a normal and prompt response with an elevation of systolic blood pressure of 40 mm. of mercury.

COMMENT

These two cases, I am sure, are representative of a large number of such which are probably overlooked, and inasmuch as thiamin is non-toxic, (Weiss has injected as much as 75 mg. intravenously without toxic manifestations) a plea is made to administer the vitamin to all patients in whom a restricted diet is necessary. It cannot be too strongly stressed that no chemical, or combination of chemicals, can take the place of a well balanced diet, meaning thereby, one containing all the vitamins.

Tests for the amount of thiamin in the urine are too complicated for routine clinical purposes, and until a practical test is discovered 300 units of thiamin, corre-

sponding to 1 mg. of thiamin hydrochloride, should be considered the minimum daily requirement.

SUMMARY

1. Our present knowledge of vitamin B₁ is the result of research extending over 50 years.

2. Myocardial dysfunction, the result of vitamin B₁ (thiamin hydrochloride) deficiency is a definite clinical entity and is promptly relieved by the administration of the vitamin.

3. Two cases, illustrating this syndrome are reported.

4. A diet containing sufficient vitamin B₁ which is readily obtainable, should lessen the incidence of the syndrome.

5. Proprietary vitamin B₁ should be required only in acute cases.

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DISCUSSION

Dr. C. J. Tripoli (New Orleans): Dr. Eustis called our attention to one of the most important recent advances in the therapy of heart disease. In the past we believed that by definition a patient must present demonstrable polyneuritis, before a diagnosis of beriberi could be substantiated.

We know now that symptoms of so-called sub-clinical beriberi may be manifest in the nervous system or cardiovascular system or gastro-intestinal tract without the complete picture being present.

Unfortunately, at the present time there is no specific practical laboratory test or positive changes in the electrocardiographic studies which are pathognomonic of beriberi.

Thusly we are confronted with a very important point in the handling of cases of beriberi type of heart disease. The dramatic result obtained by oral or parenteral administration of thiamin chloride in beriberi is incredible unless one actually sees it. But unless the patient has a deficiency, thiamin chloride may not be of value. We may say that a case is one of beriberi, or B₁ deficiency, in the presence of edema, low blood pressure, and an enlarged heart in the absence of hypertension or anemia. However, there are other conditions, not grossly manifest which can and do give the same clinical picture as beriberi and should the case be not properly studied a serious error may result. Two patients have recently come to my attention: One, a white male 48 years of age, presenting the syndrome of low blood pressure, a large heart, dyspnea on exertion, and edema of the ankles. He was given thiamin chloride and told to go about his business. He developed congestive heart failure and died. Autopsy revealed a posterior infarct in his left ventricle. The other patient was a white female 12 years of age presenting a similar syndrome. She was allowed to ride her bicycle after a preliminary course of thiamin chloride and rest. She was readmitted having edema, a large heart and hypotension. Electrocardiographic studies revealed a prolonged PR interval as seen in rheumatic heart disease.

It is probable that thiamin chloride can do no actual harm even in large doses, and that it may be useful as an adjunct to other therapy in almost any type of heart disease.

Dr. J. H. Musser (New Orleans): I had the opportunity of seeing something of the cases reported by Dr. Herrmann and Dr. Scott back in 1928. At that time, in the parish prison, there was a so-called epidemic of beriberi, and there were, I believe, four or five fatal cases. I remember one of these was a big husky buck negro. He had no history of previous disease. He was carried from the parish prison to Charity Hospital and as he was being laid in the ambulance, he made some kind of a sudden move, turned over, and promptly died. Now, of course, this type of case and these cases that Dr. Eustis has recounted are instances of exaggerated beriberi heart. I would like to stress the importance of recognizing the milder cases, cases in which the symptomatology is not positive, not definite, but given a patient who does show, as Dr. Eustis has brought out, breathlessness on slight exertion, who has had to a certain extent some slight edema of the ankles, not particularly marked, who has eaten an inadequate diet and, in addition, has fatigue, these findings suggest, if you find a red tongue, definite evidences of vitamin B deficiency. You will find that by the administration of thiamin the results are spectacular indeed. I think it is the milder cases we should recognize as we know pretty well what the entity is in the exaggerated and severe instances.

Do not be afraid to give too much thiamin. It just so happened that we had a patient in the ward three weeks ago who had a red tongue and a fissure at the corner of the mouth, dyspnea, and tenderness in the calves of the legs, an excellent case for the administration of thiamin. Thiamin was given and the results were beautiful. About five days after he had been started on this, I asked the intern what dose the patient was getting. He said he was getting 50 milligrams three times a day. That is a man sized dose, ten or twenty times what we need to give. This demonstrates that you can give excessive amounts without producing trouble. The only thing about it is that thiamin is costly and to give ten or twenty times the normal dose makes the therapy very expensive indeed.

The results with thiamin, as Dr. Eustis said, are really quite remarkable indeed. Just before I left to come here I had a conversation with a gentleman who is very much interested in rice polishings, and who is with one of the big coffee firms in New Orleans; he wanted to know if it would be practical to add rice polishings to his oatmeal in the morning, or his cream of wheat. He was interested to know whether he could have these rice polishings assayed so that they could be put on the market, as by-products, of milled rice which could actually have value. It would be a cheap way of supplying natural thiamin.

Dr. M. D. Hargrove (Shreveport): Dr. Eustis has discussed a very important phase of heart

disease. I simply want to call attention to one or two points.

In the Shreveport Charity Hospital, we see a great deal of heart disease, but frank beriberi heart we see rarely, particularly in the negro, so that we have not had a great deal of experience with typical beriberi heart. Even at autopsy, we see few patients who cannot be classified on some other etiologic basis. But we have been impressed by the number of chronic cardiacs who because of some gastrointestinal disturbance or for purposes of treatment have been on a very reduced diet with a low vitamin intake and as a result, have an associated vitamin B deficiency. With adequate doses of thiamin chloride they have shown definite improvement. I do not mean to imply that vitamin B or thiamin chloride should be given to every patient with chronic heart disease or congestive failure, but if you have a patient who has not responded to the ordinary routine of treatment, it is well worth while to add to the other medication adequate doses of vitamin B.

Dr. Allan Eustis (In closing): I did not mention the importance of absorption of the vitamin, because I expected Dr. Silverman to discuss this

point. As important as the composition of the diet is the absorption of it; an individual may be obtaining ample vitamins in the diet, but on account of some disease of the gastrointestinal tract may fail to get the benefit from them through lack of assimilation.

One point that Dr. Musser made, "these milder cases," I think is extremely important, and as I look back on cases of myocardial insufficiency which I have reported in the past, I think now they were mild cases of vitamin B₁ deficiency. I thought that diathermy and rest helped them, but the real reason for their improvement was that I insisted on their receiving a balanced diet including all the vitamins.

In earlier days the farmer took his grain to the miller and had it ground; now, the grain is refined and so contains no vitamins.

In regard to the danger of thiamin, the patient mentioned by Dr. Musser got 4500 units a day. I have a patient now whom I am observing with Dr. Hopkins, and we are giving massive doses of thiamin—160,000 international units a day, without any reaction at all. Weiss has often given as much as 70 mg. corresponding to 21,000 international units without any reactionary symptoms.

TREATMENT OF ARTHRITIS*

ARTHUR A. HEROLD, M. D.
SHREVEPORT

The study of the subject of the arthritides, in its various aspects, is enormous, the amount of literature available being no less than appalling! Someone has said that where so much is offered, there is difficulty in culling out the good, if any worthwhile be present; or, to put it in another way, Dr. Gorton, who has kindly consented to open the discussion on this paper, has (and I think from personal experience and suffering) compared Mark Twain's remarks about the weather to the subject at hand.

At any rate, we cannot, at least, lay claim to discussing something new, for, if we may believe the anthropologists, arthritis is the oldest known disease. They assert that in the museum of the University of Kansas is the skeleton of a large swimming reptile, whose foot is said to show the lesions of chronic rheumatism; the beast is supposed

to have lived 600 million years ago. They say that the ape man of the Pliocene period, a mere two million years old, the Java and the Lansing men, our own ancestors of only 500,000 years ago, had chronic rheumatism of the spine and, likewise, the ancient Egyptian mummies and pre-Columbian Indians of America.¹

As has been stressed by others, there is no disease or group of diseases that present such a high morbidity in proportion to mortality as do the arthritides and, especially, the so-called "rheumatoid arthritis." It has been estimated that fully one and one-half million people in the United States today are incapacitated for work by this malady and Hench and his associates, basing their figures on a house-to-house canvass, in certain areas, estimate that there were, in this country, in 1937, 6,850,000 persons suffering from this condition, or these conditions.²

As time will not permit a full discussion of all phases of arthritis, I shall, in this paper, exclude the specific arthritides, such as acute articular rheumatism, gout, and gonorrheal arthritis, limiting this paper to the two types of so-called rheumatoid arthritis.

*Read before the sixty-second annual meeting of the Louisiana State Medical Society, Shreveport, April 23, 1941.

Now, for a brief résumé of the etiology and pathology, as best we see them at this time.

The consensus today seems to be that the direct cause is principally trauma, in the form of direct blows, or "insults" from strains, in those persons who are predisposed, either from cachexia, endocrinopathy or avitaminosis; also with resistance lowered from grief, worry or shock—"the stress and strain of modern civilization." These lesions are aggravated, but not caused, by focal infections, either from an original focus or a secondary one.

As to the pathology, in the atrophic or proliferative type, there is found destruction of articular cartilage, which leads to ankylosis, with granulation tissue on synovial membrane and connective tissue surrounding. In the hypertrophic or degenerative type, there is destruction of articular cartilage and the production of deformity without ankylosis, the articular cartilage being eroded and exposure of both bone-ends with compensatory hyperplasia or "lipping."

TREATMENT

There are many angles and varying opinions in regard to treatment. As in everything else, the first principle of treatment is to "remove the cause," provided, of course, you can find it. Too often, it is already gone, such as trauma in its various aspects; then, we should naturally attempt to rid the body of predisposing and aggravating factors. The first step in this direction is a thorough physical examination, with all modern laboratory aids, including a basal metabolic reading and we should always be on the lookout for vitamin deficiencies. In order thoroughly to evaluate a case, cultures should be made, not only from the blood, but from all body secretions and excretions and from specimens taken from gums, throat and nose. This is the practice in the famous Burbank Clinic in New York, but Burbank and Hadjopoulos do not stop there; they test the serum of the patient with various cultures of organism involved in the arthritic process, especially the types of streptococcus so often found about the joints, and they prepare a vac-

cine out of cultures of the germs to which the patient's blood is found to be complementary. If a definite focus of infection is found to be present and, especially, if streptococcus can be shown to be present, it is well to remove this, with the hope that thereby the arthritic lesion will be improved, either directly or indirectly, by improving the patient's general condition. The same principle applies in attacking foci, without removal, as shall be brought out later.

Late removal of infected organs, after the local infection has been pretty well overcome by the bodily resistance and the damage to joints is fixed, does as much good as trying to drown a duck by pouring water on his back. In a thorough discussion of this point, Russell Haden of Cleveland, at the Southern Medical Association meeting in Oklahoma, stated that he has never seen an arthritis patient, who had come to him for aid, who had either teeth or tonsils. To quote from Hench et al: "Treatment of the disease has varied from the local application of rattlesnake or dog oil and salicylic acid, heavy metals and dyes, down to removal of almost every organ in the body that is not padlocked."²

A very important point in handling these cases and one which cannot be controverted is that of treating the patient as an individual and thereby cure or minimize constitutional deficiencies, by removing, if possible, blood dyscrasias, combating endocrinopathies, avitaminosis and—let me stress this as essential—treating intestinal auto-intoxication, a factor too often overlooked, the intestinal tract so frequently harboring virulent types of streptococci. In addition, of course, the patient's general condition otherwise permitting, definitely diseased organs in abdomen or pelvis may be removed, in the hope of "bolstering" the general resistance. Please do not misunderstand me; definitely diseased foci should be removed, but not with promise of thereby curing arthritis.

Now, as to drug therapy; much has been claimed at various times for so-called "specifics" and, in some cases, there has been

some foundation for these respective claims; for instance, we know that there are certain classes of patients who are usually relieved of any pains, for a while, with salicylates in large doses. It is known, as suggested above, that those with chronic malaria will have neuritis alleviated with quinine and other anti-malarial drugs. The sulfonamides are often helpful where cocci are involved and, especially, as aids in preventing the setting up of secondary foci of infection; sulfanilamide, sulfathiazole, sulfapyridine, disulon and various proprietary modifications have done good, in some cases, but that does not give them the rank of true specifics; where there is a luetic background and in some cases where staphylococci can be demonstrated in organs of the body, the arsphenamines will do much to combat the trouble by overcoming these stated infections. The bee sting has been said to be beneficial in arthritis generally, and it was formerly thought that any improvement was due to the counter-irritation, until some Germans put forth the claim that there is virtue in the venom and so bee-venom has gotten a reputation and is considerably used in some localities. However, the greatest claims come from the promoters of gold and sulfur therapy and there are many preparations of these elements on the market today. My own experience with gold therapy has been so limited that I shall confine by remarks concerning that method of treating atrophic or other forms of rheumatoid arthritis to the conclusions of Snyder, who closes an extensive article with the following:

"1. Gold salt therapy at present is probably our most effective weapon for the treatment of rheumatoid, infectious and mixed types of arthritis.

"2. It is admittedly dangerous because it sometimes produces toxic reactions. Improved methods of administration during the last five years both here and abroad, have brought about a rapid reduction in the percentage of toxic reactions. Our percentage has been reduced from 40 to 16 with myochrysin and gold sodium thiosulphate and 8 per cent with auro-sulfide. The great majority of our toxic reactions were mild.

"3. Myochrysin is probably the most efficacious gold salt, but it is also the most toxic. If toxic manifestations occur following the use of myochrysin, auro-sulfide can be safely substituted after the rest period.

"4. Parr and Shipton report that women are eight times more susceptible to toxic reactions from gold salts than men. It might be advisable for this reason to use myochrysin in men and auro-sulfide and parminal in women.

"5. Recently, it has been claimed by Secher that in a series of 150 cases of arthritis treated by him, all toxic reactions were eliminated by the administration of four times the normal requirements of vitamin D, B₁, B₂ and C. The accuracy of these findings should be tested out in the large arthritis clinics in this country.

"6. Auro-sulfide, an American product, appears to be the least toxic of all the gold salts used up to date. Unpublished reports from the West confirm this impression. Much clinical and experimental work remains to be done to determine the exact value of colloidal gold products."³

As to sulfur therapy, I feel that I have had sufficient experience in a limited number of cases of the hypertrophic type to state that the improvements which I have seen from the intravenous administration of sulfur diasporol have been much more than can be explained on the grounds of psychotherapy or spontaneous remissions. I shall not lengthen this paper by detailing reports of cases, but, when we see a patient who, for nearly a year, has been so stiff in the thighs and knees that she could not attend to household duties, go back to resume attendance on social functions after treatment with sulfur, we cannot but be convinced that there is virtue in it. In fact, the statement has been made that all the gold preparations are contaminated, more or less, with sulfur, so that in reality, much of the good claimed from these might be due to sulfur.³

Among treatments advocated, which have not previously been mentioned, are iodides, chaulmoogra oil, immense doses of vitamin D, histamine, bilirubin, x-ray and radium,

or thyroid extract. Some of these have their places when specially indicated, but to give them indiscriminately because advertised as effective, is little short of criminal.

I have previously referred to the undoubted large role played by "intestinal toxemia," "auto-intoxication"—or call it what you will. A majority of arthritics are chronically constipated and many have irritated their gastrointestinal tracts with harsh laxatives; not only do the end results of intestinal putrefaction do harm, but their presence in an irritated bowel makes the wall more vulnerable, so that the infected material, often laden with strains of streptococci, swallowed from infected oral or nasopharyngeal spaces, finds easy entrance into the portal circulation and often colonies are deposited about articular cartilages and joints. To combat this, Burbank has prepared a special capsule, which I use with success; it contains fatty bile acid (a sodium soap of lecithid), combined with a small amount of belladonna and phenolphthalein, which he and Hadjopoulos claim is destructive to these streptococci.¹ Regardless of this, proper attention to the hygiene of the gastrointestinal tract should always be given to arthritics; high vitamin diets with ample residue should be prescribed and acid-ash substances should be banned.

As to the vitamins, pharmaceutical houses have been making extravagant claims for their respective products, regardless of whether or not patients show evidences of deficiencies. As previously mentioned, definite deficiencies should be treated as indicated and it has been found that often vitamin C (ascorbic acid) gives much relief in cases of acute exacerbation. What the *modus operandi* is, I am not attempting to say, but large amounts of citrus fruits with 50 to 100 mgm. tablets three times a day are helpful.

The part played by the endocrines in aggravating, or contributing to suffering of arthritis should be brought out. It is well known, and frequently observed in pregnancy, that due to excess of certain hormones, chronic arthritic pains improve, whereas in the menopause and the cata-

menia, they get worse. It is certain that those who have a lack of thyroid secretion get some relief from specific therapy. On the other hand, there is such a condition as a "true thyrotoxic chronic arthritis."

Much has been said and written about both specific and non-specific vaccines in the treatment of these diseases. Undoubtedly, some are of value, especially if they act as non-specific proteins in increasing bodily resistance. Virtue has been claimed by some firms for their stock vaccines of streptococci and some doctors were enthusiastic, a few years ago, about a certain mixture of "a little of everything," put out by a certain reputable drug firm under a patented name; they claimed it a specific for "rheumatism," the improvement which was seen from it being clearly due to the non-specific protein reaction. The nearest approach to a specific serum or vaccine, one which I have personally used with good results, is that prepared by Burbank and his associates, to which I have previously referred.

Physiotherapy, in which heat is pre-eminent, is not to be overlooked as a valuable adjunct in the handling of these patients. I know of nothing so relieving in spondylitis as a hot shower bath down the spine, followed by a brisk rub; likewise, hot sitz-baths when the bones of pelvis and hips are involved. This is the great virtue of the spas in this country and abroad. Passive motion, properly applied, where indicated, together in some cases with scientific massage, is of much value, but these should be used only upon advice of competent orthopedists.

This brings us to orthopedic considerations and, when we internists need orthopedic help for an arthritic patient, we usually know—or, at least, think we know—to whom to appeal. I would like to state that I am leaving this phase of the subject to one better fitted to discuss it, but, from personal experience, I must say that there is nothing more welcome in painful arthritis of cervical spine than immobilization with extension.

Psychotherapy plays a large part, no doubt, in properly handling the chronic ar-

thritic. The physician who can keep his patient in a happy frame of mind through the exacerbations, knowing that a remission will follow, is a good psychologist. We certainly have enough vaunted remedies to try out to keep his hopes buoyed up and we should remember the dictum of Barker that "a psychiatrist should know medicine, an internist should always be a psychiatrist also." We should bear this in mind and always take advantage of the remissions to reassure the patients.

Osgood concluded a recent article as follows: "I have no conviction that either the exact etiology or the rational treatment of atrophic or rheumatoid arthritis or of hypertrophic or degenerative joint disease has been found. The findings in experimental animals and a small amount of clinical work merely suggest that more extensive and intensive research should be encouraged."¹ While I cannot agree, *in toto*, with this learned authority, still there is much food for thought in his utterance, which comes after many years of experience and it is to be hoped that those with research facilities will further enlighten us in the near future.

CONCLUSION

I would like to leave this thought with you: There is probably no disease or class of diseases today that requires more individualizing than the subject of this paper; in other words, here is the time when we have to treat the patient rather than the disease.

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DISCUSSION

Dr. J. T. Jacobs (Oklahoma City): The treatment of arthritis is basically medical. The orthopedic treatment simply aims at relief of pain and correction of deformity by mechanical or surgical means.

In the atrophic type of arthritis, the patient is usually first seen with multiple joint swellings which are very painful. The slightest motion pro-

duces more pain, and he is awakened at all hours of the night. These joints need complete physiologic rest, and simply lying in bed is insufficient. Well molded plaster splints, which immobilize all afflicted joints, should be used; they enable the patient to move with relatively little pain, and are removable for nursing care. Since fibrous ankylosis often occurs, these splints also serve the purpose of maintaining the joint in the position of maximum usefulness. The importance of this splinting cannot be over emphasized. The prevention of these deformities is much easier than their correction. During this acute stage, local heat may give some comfort, and massage can be used between the joints, rather than directly over the inflamed area.

When the acute stage is over, any residual deformity is attacked as an individual problem. Flexion contractures can often be overcome by traction or by wedging plaster casts. Unstable or painful joints can often be improved by arthrodesis. Stiff joints sometimes call for arthroplasty or other measures too numerous to mention.

In the hypertrophic type of arthritis, multiple small traumata predispose to its development. Thus, in knock knee, the lateral condyles of the tibia and femur are subjected to excessive weight thrust, and hypertrophic arthritis often results. In this instance, a heel wedge can often redistribute the weight bearing thrust so as to relieve the uneven strain and prevent or relieve the development of this condition. Many other similar instances in the weight bearing joints are seen; a short leg which will overwork the lumbar spine, or a healed fracture with misalignment, provide the necessary small traumata to develop the arthritic changes. These conditions sometimes require major surgical procedures, but more often, simple shoe correction is sufficient.

In the more general type of hypertrophic arthritis, the orthopedic measures are largely directed at the relief of pain, and each case is a problem in itself. Thus, as Dr. Herold has mentioned, extension with immobilization in the arthritic cervical spine often gives surprising relief which may persist for months or even years after cessation of the treatment.

To discuss the orthopedic treatment of each joint would take excessive time. The orthopedic care of hypertrophic arthritis can be summarized as follows: Measures which give partial or complete rest to the joint; a circular cast for complete rest; braces which allow only a limited range of joint motion will give partial rest; physical therapy in the form of heat and massage, and surgical measures which re-align or even reconstruct the joint can be resorted to.

In general, it may be said that when pain or deformity exists, the orthopedic surgeon has much to offer as an adjunct to the medical treatment.

Dr. J. M. Gorton (Shreveport): In discussing the treatment of any disease we naturally have to

consider the etiology. There is great divergence of opinion as to what is or are the main etiologic factors. Some consider infection; others, circulatory, intestinal, or allergic. To me the whole seems complex and the varied etiologic factors which are claimed to be the cause seem rather to be the factor which disturbs metabolic processes and in turn alters circulation and nutrition to such extent that arthritis results. I believe metabolic changes to be the final factor in arthritis.

I have tried nearly everything recommended by Dr. Herold except the gold therapy and vaccine of Burbank. None of the drugs, vaccines or other preparations have been very satisfactory. Several years ago I used to some extent phylacogens which Dr. Herold referred to and must confess I did get some response but I am certain now that it was the protein reaction and not any merit in the mixture itself.

Professor Cawadias of Athens University states that the cells in arthritis have lost their ability to retain sulphur in same manner as cells in tuberculosis lose their ability to retain calcium and cells in diabetes lose their ability to utilize carbohydrates.

Professor Robert Bish of Germany, in 1921 called attention to the useful role of sulfur in treatment of arthritis.

More recently Dr. S. C. Woldenberg, of the United States Veterans' Facility, has published many reports of the use of colloidal sulfur (diasporol). He reported some time ago 356 cases among veterans treated in Government Hospitals and states that 78 per cent responded favorably.

He calls attention in a recent published article to the important part played by colloids. The important cell elements are proteins and lipoids. These are influenced in their functions largely by the colloids. Sulfur existing in the tissues in a colloidal state is the most important oxidizing agent. It is, however, very loosely associated and has a great affinity to numerous toxins.

It combines readily with histamine which then loses its physiologic properties and is eliminated. It also combines with indol to form indoxyl and is eliminated as indican. This shows that there may be great loss of sulfur as result of toxic substances in the blood which have a great affinity for the sulfur. Various inflammatory diseases may produce these substances and in this way be the indirect cause of arthritis. Sulfur exists in tissues as glutathione. Its products, cystine and cysteine, are the normal available substances furnished by the liver and are necessary constituents of tissue cells.

The cystine test of fingernails has shown that in normal persons the percentage of 12 is usual but that in patients with rheumatism it drops to as low as 6.5 per cent at times. This would add weight to the theory that rheumatics are sufferers of loss of sulfur.

From the foregoing remarks then, we assume that sulfur therapy is rational and that we may find many patients will yield to this type of treatment.

Dr. Joseph S. Shavin (Shreveport): One thing that impressed me particularly was the emphasis placed upon the auto-intoxication or the endocrine factor in the arthritic process. In conjunction with Dr. Browning, we collected from 95 to 100 cases of arthritis, mostly of the atrophic type, only a small percentage of hypertrophic. Of these, between 85 and 90 per cent were relieved or cured. They were treated only on the basis of food sensitization. We felt that a good many of the arthritics had their relapses and flare-ups on the basis of auto-intoxication but we felt that a good deal was brought on by an allergic state. Those individuals showed high indican content in the urine, and, in connection with this, I have seen high indican urine in gastrointestinal allergy I know. It should be a routine test where gastrointestinal symptoms are complained of; where spastic colitis and flatulence are complained of.

A number of the patients would be placed on a diet, limiting their diet to non-allergic foods, purely on the basis of tests. Those people who broke their diets soon realized the arthritis flared up. With the elimination of foods to which they were sensitive, the arthritis subsided. The proof of the pudding is that once they learned their lesson, they stayed away from the things that bothered them. After the arthritis had subsided sufficiently, they could go along to a fairly normal diet, but if they have any symptoms, the allergic foods were eliminated.

What produces the state, I cannot say. It is known that the liver has a great deal to do with the production of the breaking down of any salt and sulfur metabolism, and the use of the gold salts, which roughly contain sulfur, allow the liver to take care of the by-products. I feel that is the way the use of gold has been. That is why, I believe, many of the patients treated with gold have not improved as much as they should have.

Dr. Arthur A. Herold (In closing): I think Dr. Gorton hit the nail on the head when he said regardless of the etiologic factors, it resolves itself into the fact that there is a metabolic error. As to Dr. Shavin's remarks, I never take issue with an allergist, as I do not know a great deal about it, and do not know who does know a great deal about dealing with sensitivity and idiosyncrasy and think allergy is a proper study in itself.

I would like to emphasize that in addition to absorption of indican from the gastrointestinal tract, these cases of chronic constipation have irritation of the tract, which forms a good ground for absorption of organisms, for foci of infection, and therefore, the intestinal tract should be looked after.

There is still room for study and investigation, and I am in hopes that some time we will find a

better specific. And, in the meantime, we had better study the patients and treat the deficiencies and improve their general condition, rather than confine our efforts to a few specifics.

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INDUSTRIAL EYE INJURIES AND THEIR TREATMENT*

ALLEN W. MARTIN, M. D.
BOGALUSA

At the present time, when the wheels of industry are geared to their limit for the purpose of national defense, and inexperienced workmen are employed to carry out the rush of this enterprise, it is to be expected that the eye will share in proportion to other injuries.

Realizing that the greatest obligation the ophthalmologist has to society is the preservation and conservation of vision, I deem the occasion apropos for a dissertation of this type. I hope that what I have to say will be of benefit to the general practitioner, and, in some measure, strike a chord of unanimity of opinion among ophthalmologists. Before delving into the subject of industrial eye injuries and their treatment, I shall endeavor to outline some of the protective measures which we have been able to establish through the cooperation of the larger industries, for whose employees I have had the privilege of caring, during the past ten years.

First: Pre-employment eye examinations of all applicants, consisting of complete examination of all parts of the eye, registering of all defects, and the recording of the percentage of vision. These findings are placed in the records of the superintendent of employment.

Second: Periodic examinations, every year, and re-examinations of all employees who have, by reason of illness or other causes, been absent from work for more than 14 days.

Third: The insistence that all employees report immediately for medical aid for even the most insignificant eye injury, and the

protection of all injured eyes, either by bandaging or the use of protective shades, wherever an anesthetic is used in the eye, permitting no employee, who may have a defect of vision greater than 20/40, to work at dangerous occupations.

Fourth: The use of industrial protective measures, such as warning signs, the wearing of goggles in certain occupations, and the guarding of dangerous machinery through the engineering department, all of which have contributed to reducing the hazard of eye injuries to a minimum.

By industrial eye injuries, is meant all changes in the eye and its adnexa, caused by traumatism in industrial pursuits, which may affect the function and appearance of the eye through mechanical, thermal, chemical, and electrical forces, and I shall endeavor to group these injuries under the above named forces.

FOREIGN BODIES

Under mechanical forces, the most frequent injury encountered is foreign bodies. Their location may be under the lids, therefore are quite easily removed by simply everting the lid by grasping the lashes, pulling the lid downward, placing a round probe or applicator over the lid, causing the patient to look down, raising the lid slightly while bearing downward and forward with the instrument. At this time the offending body may be easily brushed away.

Foreign bodies on the cornea may be simple or lead to dangerous complications, and their removal should not be attempted without perfect anesthesia with brilliant illumination and accurate magnification, at times staining with fluorescein solution. For anesthetic purposes, I use a 2 per cent solution of butyn, exclusively. Two drops in the lower cul de sac every minute for three times, will produce perfect anesthesia. Then, with a dull spud or applicator wound with cotton, dipped in sterile boric solution, the foreign body is easily removed. Where foreign bodies, such as steel, fine emery dust, or pieces of iron scale are impacted, I feel that a sharp pointed instrument is far superior for the removal of these offending bodies for the reason that there is less laceration and traumatism of the corneal

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epithelium when such an instrument is properly manipulated. For rings of rust following the impaction of iron scales, in patients who have delayed in reporting for treatment, or the rings improperly removed, promoting the possibility of infection, the complete extirpation of the ring with cauterization is necessary for relieving the irritation. The use of a 1 per cent solution of atropine drops, and if indication of pneumococci infection, the area should be touched with a 5 per cent solution of optochin, with the administration of sulfapyridine or sulfathiazole, has proved distinctly advantageous in all of these cases.

Penetrating foreign bodies are very serious and the outcome can not be determined. If magnetic in character, the giant magnet should be used in an attempt to extract them through the original opening, provided they are in the chamber of the eye. In this case, care should be taken not to contact the iris, lens, or ciliary bodies. If lodged in the iris, an iridectomy should be performed with especially great care, and the minute body thusly removed. If located in the lens, an opacity usually follows, which may be removed after the eye becomes quiet. If these offending bodies produce a uveitis and a change in the tension of the eye, with loss of light perception, an enucleation becomes necessary to prevent a sympathetic ophthalmia.

CONTUSIONS

Corneal contusions and abrasions are frequent, and if seen early should give but little trouble. After proper cleansing and sterilizing of the eye with bichloride 1-5000 solution, a simple protective bandage usually is all that is necessary. However, I have recently seen two cases of parenchymatous keratitis of the avascular type following a slight contusion of the cornea, showing little disturbance of the epithelial cells. Both failed to respond to the early treatment. In these cases, about one-fifth of the cornea over the injured area showed a bluish-gray discoloration with an accompanying iritis and intense pain and photophobia. A blood Wassermann revealed a positive condition. The consent of the insurer was obtained for the institution of the proper treatment,

which cleared these cases promptly.

In contusions which involve the inner structures of the eye, the iris may be separated from its attachment or torn, causing hyphemia, which should subside with rest, cold applications, 1 per cent atropine, and after 36 hours, hot applications to promote absorption. Paralysis of the sphincter, which causes a partial or almost complete dilatation, and is neither affected by atropine nor eserine, may last for considerable time, necessitating the constant wearing of colored lenses.

Contusions of the ciliary bodies may lead to very serious complications and the pain should be combated with atropine and dionin, rest and hot applications. Contusions of the lens may cause a dislocation or rupture of the zonula, producing a cataractous condition, which may be relieved after the eye becomes quiet, by discission or linear extraction. Tear and detachment of the retina are the most disastrous injuries due to contusions, and may result in blindness, depending upon their location. For these conditions the more recent operative procedures with micropin punctures have shown marked success. I must say, however, that in proportion to all the injuries I have seen, these have fortunately been very rare.

LACERATIONS

Lacerations are frequently met in industrial work, and the proper coaptation of the injured parts is of the greatest importance in preventing hideous deformities, particularly in the lids, and especially when these lacerations are in their entirety. The proper method of repair is the separation of the tarsus from the skin and fascia, and the suturing of each separately, with a central suture through both, to prevent a shrinking of the border of the lid.

Corneal lacerations should be treated in accordance with their severity and depth. In minor injuries, proper sterilization with protective bandaging is sufficient. In the deeper types, a conjunctival flap should be dissected, drawn over the injury, and sutured, with 1 per cent atropine, and injections of sterile boiled milk to increase leucocytosis. After about five days, these sutures usually disengage themselves and the

flap can be returned to the normal position and resutured.

Scleral or sclero-corneal lacerations, if penetrating, are of the most dangerous type, as the ciliary bodies are injured with prolapse of the iris, and the danger of interocular infection becomes likely. If the iris is prolapsed into the wound, there should be an attempt at replacement. However, usually the incarcerated portion must be severed, as in an iridectomy, and the sclera sutured. Antitetanus serum should be administered and, if possible, 50 per cent solution of argyrol should be injected into the anterior chamber, with the use of atropine and dionin, and injections of sterile milk, intramuscularly, given daily. If iridocyclitis is followed by uveitis, with the loss of light perception and lowered tension, an enucleation should be performed. However, since the advent of sulfanilamide and its allies, particularly sulfathiazole, I have seen some striking results obtained from its administration.

THERMAL INJURIES

Thermal injuries are those from actual heat. Hot metals, steam, explosions, or flame from furnaces are some of the sources, and fortunately, other portions of the eye itself are protected by the sudden closure of the lids. In some instances, however, this is not the case. Lid burns are treated as other burns of the skin. Butesin picrate ointment is the preferred type of ointment, due to the picric acid it contains, and a sufficient amount of butyn for the relief of pain.

Corneal burns may be simple or very deep, with considerable loss of corneal membrane over extensive areas, and the resulting loss of the eye or large leukoma. In superficial burns a simple protective dressing for 36 hours will usually suffice. In deeper burns, with large areas of the cornea involved, the purpose is to prevent infection, if possible, by frequent cleansing, the administration of sulfathiazole, and the use of butesin picrate ointment. For superficial leukoma which follows these injuries, the nightly application of 4 per cent quinine bisulphate ointment is beneficial in removing these blemishes.

In conjunctival burns, the use of butesin picrate ointment and the daily separation of the lids from the globe, with a round applicator, will prevent symblephron. If the burns are sufficiently deep to involve the sclera, they are very much more disastrous, and I have seen a purulent choroiditis due to a flame burn involving the sclera as far as the limbus, resulting in panophthalmitis, demanding enucleation.

Chemical burns may be either acid or alkali. In acid burns, as in all chemical burns, the eradication of the offending substance is more important than an attempt at neutralization. Acid burns may involve the lids, the conjunctiva, the cornea, and even the sclera. In these burns, after thorough irrigation with sterile boric solution, or even tap water, to insure the removal of all acid, the burned areas are treated as other burns.

Alkali burns are, as a rule, those of caustic potash or soda, ammonia, or lime. In these burns, the usual principle of eliminating the offending cause, is maintained. Dilute acetic acid may be used in caustic burns, with the use of butesin picrate ointment as an after dressing. These chemicals may have the same deleterious effect as the flame burn, involving the deeper structures, resulting in corneal destruction and panophthalmitis. One type of combined chemical, used in the digestion of pulp, in paper manufacture, called "black liquor," and composed of lignin, cellulose, and caustic soda, causes a very serious type of burn. This is a combination of heat and chemicals, and the treatment is the same as in other burns.

Lime burns are indeed very disastrous to the cornea and conjunctiva, and all particles of lime should first be thoroughly removed. In these cases, the lime usually contains cement, as in mortar, and every particle should be picked from the cornea and conjunctiva. Freshly prepared neutral ammonium tartrate should be used frequently to irrigate the eye, with the daily separation of the lids from the globe with some type of ointment, such as boric acid ointment, to prevent symblephron.

Ammonia burns are usually received from refrigerator explosions, and the force of the contact adds to the severity of the chemical. I am now treating such a case of a man who works at one of the largest industries. In attempting to adjust a refrigerator, he turned a gadget the wrong way, causing an explosion, and blowing ammonia gases into both eyes. I instituted the thorough irrigation of both eyes for several minutes in order to remove, as much as possible, the gas fumes, then applied butesin picrate ointment, a 1 per cent solution of atropine, and bandaged both eyes. A paracentesis was considered, but as the eyes showed no cloudiness of the media or cornea, this was held in suspension, and the eyes went on to an uneventful recovery.

Electrical burns are usually the result of electrical flashes in short circuiting, and are treated much the same as other burns. Electrical flashes from welding machines, which may be sustained by simply looking at the electric rays without the proper protection, cause great discomfort. This is due to the irritation of the terminal filament of the trigeminal nerve, which supplies the corneal epithelium. The treatment for this injury is the use of protective bandaging of the eye with the absolute exclusion of light for 24 hours.

CONCLUSION

It has not been my purpose to attempt to convey anything new or startling, but simply to epitomize the importance of the seeing of the patients as early as possible, instituting of the proper treatment at first sight, and looking upon the apparently most insignificant eye injury as potentially dangerous, the outcome of which can not be determined.

DISCUSSION

Dr. D. T. Martin (Donaldsonville): I want to mention one thing I have thought of in doing eye work and that is that the general practitioner should know something about the eye. I have mentioned this many times and I think that students should not be graduated from medical school until they are taught when to use atropine and when not to use atropine. I have seen three eyes lost due to the fact that atropine was put in the eye by a general practitioner. If it was known when to use atropine, when not to use it, I think those eyes could have been saved.

Dr. C. A. Weiss (Baton Rouge): Since Dr. Martin's paper was along the lines of preventive as well as curative measures, I want to stress one point brought out. That is the pre-examination of eyes before industrial employment. It is hard for employees to get their employer to have their eyes examined before taking a position. The well organized companies such as large corporations, have realized the importance of this precaution and have all employees examined before they are employed. The transient employing agencies which move in one day and move out again after a few weeks are the worst offenders. You see lots of employees but you have no pre-examination record of the eye; one of the employees gets hurt and you have nothing to go by in the way of the eye condition before employment. I have repeatedly asked the insurance companies why they do not insist on this pre-employment examination. They said labor organizations opposed it too strongly. If we can get sufficient cooperation of the employers with the medical profession to insist on pre-employment examination, I think it will save lots of eyes and save the ophthalmologist many headaches, not to mention the unnecessary lawsuits for compensation.

Along the line of prevention, Dr. Martin mentioned the use of sulfanilamide and sulfathiazole as preventives. In my practice I make up my anesthetic solution with 1-8000 solution oxycyanide mercury. I think in that way the eye is anesthetized and aseptified at the same time. We have gone a long way toward prevention of future infection in that eye.

The other features brought out are also excellent. Another thing we have trouble with often in finishing up treatment of eye injuries or removal of foreign bodies is the application of a pad or bandage to the injured eye. Invariably I tell those patients that they take the responsibility of their eye in their own hands. I do not take the responsibility for the loss of the eye if they refuse a pad, and that usually obtains their consent. I have refused to treat some of those patients who refuse to have their eye covered after an injury. I have seen some terrible results from lack of application of pad or bandage to the eye where considerable epithelium of the cornea has been removed, and the eye left uncovered.

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MILDER THYROID DEFICIENCIES*

EARL JONES, M. D.
ALEXANDRIA

In discussing any gland of internal secretion, we start off with a handicap. Like a hunter lost in the forest, we have no trail

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to follow. The thyroid gland is fascinating because it seems to work so many wonders with the other glands of internal secretion. It is the accelerator for the other endocrine glands. In this discussion, I will take up some of the internist's problems caused by a deficient output. I will limit this paper to the diagnosis and treatment of thyroid deficiencies.

THE HYPOTHYROID CHILD

Thyroid deficiency occurs in all ages, both sexes and in all degrees. It causes a stunting of the physical, mental and sexual activities and of the body growth and development. We are prone to think of the worst degree in childhood as cretinism and in the older individual as myxedema. Cretinism is myxedema and both are severe thyroid deficiencies. From the normal to the worst type we would have to bridge a span of many degrees. In our daily routine, we should become more conscious of hypothyroidism as a producer of many of the annoying conditions we are called upon to treat. Once recognized and treated it is very responsive. With the pediatrician, there is a more urgent appeal because he realizes the destructive effect of hypothyroidism on mental and physical growth and better realizes the importance of early recognition and treatment. Better to aid the pediatricians, the obstetricians have noticed the elevation of the basal rate to a normal of $+20$ to a $+25$ during pregnancy and agree that it is wise to consider desiccated thyroid for all of their patients falling under this level. Such a measure is wise and will prevent the birth of so many infants with over-worked thyroid glands and hypothyroid complexes. A hypothyroid child should always put you on guard to the possibility of a hypothyroid mother and of a maternal grandmother with an unsuspected myxedema. It must also be remembered that the younger the child the higher the rate, so again a minus report is of more significance. Against these two peculiarities we find another one that is quite the reverse. In debilitating illnesses there is often a marked degree of hypothyroidism. This would appear more as an effort on

nature's part to conserve the bodily resources. With such a view it seems reasonable to conclude that thyroid administration would be harmful.

The child with a deficient thyroid does not always look like a cretin. He may be nervous and hyperkinetic rather than sluggish as expected; he may be thin rather than fat. The texture of his skin, hair and his facial expression may be perfectly normal. Your clue may be some speech defect, a slight deafness or some behavior abnormality. A birth weight of over nine pounds should make you suspect a thyropituitary deficiency, whereas a birth weight of five pounds or less should place you on guard for a possible thyroid deficiency. You would more readily suspect hypothyroidism if you noticed a diminished rate of growth of the hair, nails and bones, or a head of thick coarse hair. Umbilical hernia occurs quite often in hypothyroid children, so does allergy, eczema, colic and a dry skin that cracks easily and gives so much trouble from the fungoid type of invasion. Retarded development in walking, talking or teething should attract your attention to a possible deficiency. The ratio between the upper and lower body segments normally changes because of the more rapid growth of the lower segment. In hypothyroidism this ratio remains that of a younger child. Any slowing of the growth rate should warn you and by studying the child's ratio you may gain a fair knowledge of when the deficiency began. You are likely to find a short nose with a flat bridge, large tonsils and adenoids and a history of many colds. You find delayed dentition and that the teeth formed during thyroid deficiency are structurally weak and decay readily. In early life, cerebral development is delayed and if untreated, permanent damage may result. Cases that occur in late childhood may show no cerebral defect. In older children you may find a normal intelligence quotient even though the child is found to be sluggish mentally. There are children who have a marked deficiency without any characteristic structural changes and its recognition will depend purely on functional

studies. Some degree of mental sluggishness and physical inactivity is likely to be present; however you may have a very temperamental child, one who is inattentive, forgetful, clumsy or just plain undependable. Suspect a thyroid deficiency in any girl who menstruates before she is thirteen. Pale grayish cheeks and lips and circulatory mottling of the skin are evidences of decreased peripheral circulation and are seen often in these deficiencies.

HYPOTHYROIDISM IN ADULTS

In older patients suspect the ones who complain that they are always tired; the allergics; the lady whose hair will not take a permanent; premature graying; increased sugar tolerance; low voltage in the electrocardiographic tracings; spastic constipation and flatulence; gastrointestinal upsets and the ones with a poor appetite. Suspect hypothyroidism in the patients who drift from physician to physician with various diagnoses of arthritis, rheumatism, myositis and the like. They may report having many operations with no relief from their symptoms. Many will be found to have a thyroid deficiency and in these a few grains of desiccated thyroid a day will work wonders. A fair clinical rule would be to suspect a thyroid deficiency in any patient with chronic myalgia, arthralgia, joint stiffness, soreness or backache. The patient who goes from one oculist to another and is never pleased with his glasses should also be tested. He is more than likely a hypothyroid. Then we see a group of patients in whom a thyroid deficiency produces almost a complete reversal of the clinical picture. They are nervous and irritable, undernourished and prone to complain of palpitation and tachycardia. Their skin and hair may be of normal texture. Their only characteristic symptoms are likely to be fatigue and intolerance to cold, yet they will respond to thyroid medication. In the female, menstrual disturbances are common, usually profuse and irregular and it is of interest to note that in unfertile females, 45 per cent are hypothyroids. A mild hypochromic anemia should warn you of the possibility of a thyroid deficiency, as should all frac-

tures with delayed union. Most elderly individuals who are worn out and mentally confused are hypothyroids and respond beautifully to treatment. By way of contrast, we encounter a group of patients with many symptoms simulating thyroid deficiency but in whom thyroid function is normal and therapy useless. They are often overweight with a cool skin, slow pulse and a low blood pressure. Their chief complaints are usually some combination of fatigue, asthenia, vertigo, palpitation, dyspnea and irritability. Their basal rate may be a little low but neither it nor their symptoms will respond to thyroid therapy.

LABORATORY STUDIES

Once suspected, a thyroid deficiency in the younger age group can be checked with x-ray studies of the wrist and ankle. Then, too, a blood cholesterol value of over 200 mg. per hundred centimeters of serum is suggestive of thyroid deficiency provided other conditions that run this value up, as, pregnancy, diabetes, nephrosis and hepatic disease, can be ruled out. Unfortunately these two laboratory procedures do not cross check with each other too well. You may find condemning x-ray evidence in a patient with a blood cholesterol value of as low as 120 mg. A basal test should be run on all possible cases. You can usually get a satisfactory test on a child of eight to nine. In younger children a test on the mother might be of some value in your conclusions. Remember that our basal test measures only the oxygen consumption which is but one part of the thyroid activity. The percentage error is necessarily high since there is a 15 per cent variation in the surface area calculations as made with the tables. Then too such extrinsic factors as diet, race, climate and emotions give us other unstable variations. This is further demonstrated in actual practice. A symptom free individual is seen with a -35 or a hypothyroid with a -5 having annoying symptoms that respond to treatment.

TREATMENT

The most important problem in treatment of thyroid deficiency is its early recognition. The greatest handicap to the proper treatment is a universal fear, among the

lay population, of the use of thyroid medication. It is quite true that symptoms of hyperthyroidism can be quickly induced in a patient by giving excessive doses of thyroid substance, but they quickly subside when the medication is withdrawn. There seems to be no advantage in giving the fancy and expensive preparations. Use plain desiccated thyroid of one standard brand and stay with it, since different brands seem to vary greatly in their potency. Primary hypothyroidism requires a smaller dose than the polyglandular types. A single early morning dose seems to be ideal. Observe your patient frequently until a maintenance dose is established, starting with a small dose and increasing it gradually until symptoms of toxemia are produced, then dropping back one or two grains to arrive at a maintenance dose. Your patient will have to continue on a maintenance dose after the basal has reached the normal level. In adults give sufficient desiccated thyroid to keep them symptom free. In children it is better to raise the rate to a slight degree of hyperthyroidism and avoid retardation in the rate of growth and development. The dose will be found to vary greatly and has to be determined for each individual. Convince the patient that this is not a dangerous drug but a safe animal food and like all necessary foods it has to be continued. Too great an increase in the pulse rate may prevent the use of enough thyroid to help your patient. The addition of iodine makes the thyroid extract better tolerated in these cases. Toxic symptoms are: diarrhea or cramping, vomiting, sweating, irritability and nervousness, excessive or continuous loss of weight, very rapid pulse rate and elevation of body temperature.

CONCLUSIONS

Look for all types of hypothyroidism; do not miss the diagnosis of a curable condition; be particularly careful in your hypothyroid expectant mothers to prevent the birth of another hypothyroid. Do not think of hypothyroidism as cretinism or myxedema or refer to the basal metabolic rate as the significant diagnostic criterion; re-

member the endocrine factor in migraine, arthritis, allergy, acne vulgaris, hypertension and in growth and sexual disturbances. After all, when you can relieve a deafness, cause a stunted child to grow, clear up an ichthyosis, improve an anemia that has not responded properly to usual medication, smooth up a bad disposition, make a sociable agreeable child out of a retiring phlegmatic individual, cause a sluggish fracture to heal, rest up a few tired patients, clear up the mind of a few delirious patients and wind up a few run down doctors and nurses, you have accomplished something worth while.

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DISCUSSION

Dr. R. T. Lucas (Shreveport): I think this is entirely too important a subject to allow it to go without discussion, because of its relative frequency. We owe Dr. Jones thanks for merely bringing it to our attention. The thyroid is the one gland that we probably know most about. Hypofunction is the one glandular disturbance in which most is accomplished with therapy, but thyroid extract should be used with caution the same as in the use of any other potent therapeutic procedure.

Dr. Earl Jones (In closing): I am sorry that due to illness Dr. McBride was unable to be present. I was particularly anxious for him to discuss the paper because he is a gynecologist and he wanted to take up the obstetric and gynecologic side of the question, and I think we all missed something by not hearing his interpretation.

CONDYLOMATA ACUMINATA

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NEW ORLEANS

There is very little in the recent literature concerning condylomata acuminata, although the lesions are still frequently seen in surgical, gynecologic, and obstetric clinics. The condition often complicates pregnancy, causing cesarean section to be performed for fear of puerperal sepsis. The primary purpose of this paper is to report experience with the use of podophyllin, which seems to be a specific for this condition.

ETIOLOGY

The specific cause of condylomata acuminata is not definitely known. The lesions were formerly considered positive proof of syphilis, but it is now known that they may be of either the syphilitic or the acuminate variety and that the two types may even occur in the same patient. The theories of cell inclusion resembling protozoa, of bacterial origin, and of transmission by contact have never been proved. The lesions usually appear in association with chronic irritating discharges, and it seems likely that such discharges, whether acid or alkaline and regardless of their source, may be the cause of the growths.

OCCURRENCE

The most common site of the lesions is between the labial folds, where the vaginal secretion collects and is less likely to be removed by cleansing; they are also found on the perineum, within the vagina, on the cervix, on the prepuce, and may also occur just at the edge of the anus or on the mucous membrane above the sphincter, usually in the first inch of the canal.

PATHOLOGY

Grossly, the growths bear at times a strong resemblance to a raspberry, a cauliflower, or a cockscomb. They are soft to the touch and are of a red, cyanotic hue. They begin as small, discrete, pointed papillae but later become confluent and

form growths of considerable size, especially during pregnancy. Usually they are about one to one and a half inches long; some are sessile, attached to the base, others are pedunculated and attached to other growths by the end point. When the papules are located on the mucous membranes they are constantly moist with a mucopurulent discharge; when they are on a cutaneous surface they are usually small, dry, and hard.

On section (Ravogli), "the specimen under low power shows a thick epidermis. The horny layer is thick and is easily detached from the other layers. The cells are not keratinized to form a strong protection. The mucous layer is thick, enlarged, made up of large epidermic cells of the prickly type. They do not show difference between the granular and the basal layer. The epidermis is adjusted on the elongated papillae, separating and covering each division of the papilla without causing any compression. The papillae, greatly enlarged, are divided at their ends into small thin sprigs. They are formed by connective tissue fibers, which are greatly increased in quantity and in size, infiltrated with small cells. Each growing papilla contains blood and lymph vessels. The capillaries which enter in the enlarged papillae have the caliber of cutaneous veins, and in some of the papillae the veins are dilated in the form of varicosities. Between the fibers forming the papillae there are lymph spaces which are filled with fibrin granules. Leukocytes and mast cells are found in the newly formed connective tissues. The proliferating process is remarkable. It can take large proportions, by the dichotomic scission of the end of the papillae through a chronic hyperplastic inflammatory process. The great enlargement of the blood vessels, the congestion, and the effused lymph between the tissues, is the cause of the swelling of the connective tissues and of the increase of the epidermic layers. It seems that the effusion of the lymphocytes between the connective tissue elements produces the proliferation and the increase of the growth. The papillae do not grow in one direction,

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but extend on all sides in the form of a fan. On account of the enlargement of the veins at the end of the growth, they take the appearance of a mushroom or of a pear. From this irregular process of side growths results the cauliflower appearance of the condylomatous mass."

DIAGNOSIS

The diagnosis is usually not difficult. *Condylomata acuminata* or genital warts must be differentiated from malignant growths and from those due to syphilis. The lesions due to syphilis are usually flat and broad, whereas those due to gonorrhea or to non-specific causes are pedunculated or sessile. Carcinoma, with which the condylomata may be confused, can be excluded by microscopic examination.

TREATMENT

Numerous methods of treatment have been advocated: Roentgen irradiation, radium irradiation, surgical excision, vulvectomy, ultra-violet irradiation, ointments and escharotics, and removal by cautery. None have been successful and recurrences have been the rule.

The treatment advocated here is simple. It consists of the application of 25 per cent podophyllin in mineral oil to all of the condylomatous masses, care being taken not to make the application too liberal. Within six to eight hours after the application, the patient begins to experience pain over the area of application and usually requires codeine sulfate or even morphine for relief. During the next twelve hours there is a marked local reaction, with inflammation and edema throughout the tissues near the site of application. On the second and third days the condylomata begin to slough off and the pain ceases. On the fourth or fifth day the tissues return to normal. No scarring is visible at the site of the condylomata or surrounding structures. A single application of the 25 per cent solution usually suffices. A weaker solution requires repeated applications and the pain is almost as severe.

In the present series of cases, twenty patients with condylomata acuminata and venereal warts were treated in this manner

and all were cured. Twelve were women, eight of whom were pregnant. The smears were negative for gonococci and the Wassermann reactions were also negative. There was one child who had an anal condyloma; in his case also the smears and Wassermann reaction were negative. There were seven males; four had smears which were positive for gonorrhea; none had syphilis.

The following are typical case reports from our series:

CASE NO. 1

Mrs. T. B., white female, aged 21, was admitted to the Obstetrical Clinic at Touro Infirmary when she was seven months' pregnant. Examination revealed one condyloma about one centimeter in diameter on the fourchette at the muco-cutaneous junction and two small condylomata between the labia minora and majora on both sides. Smears were negative for gonorrhea and the Wassermann reaction was also negative.

Twenty-five per cent podophyllin in mineral oil was applied. Eight hours later the patient began to complain of pain, and codeine was given for relief. Twelve hours later there was a marked reaction throughout the tissues of the perineum. On the fourth day the condylomata began to slough off and the pain disappeared. On the tenth day the perineal tissues were completely normal. The patient has had no recurrences.

CASE NO. 2

Mrs. R. M., white female, aged 17, was admitted to the ward when she was eight months' pregnant. Examination showed that the entire vagina was filled with condylomatous masses and that the lesions were also present on the vulva. The insertion of one finger into the vagina caused the patient to scream with pain. One week previously an attempt had been made to remove some of the condylomata with a cautery but they seemed to recur almost immediately after removal. The Wassermann reaction was negative and smears were negative for gonococci.

The vagina was swabbed with 25 per cent podophyllin in mineral oil on a cotton applicator and the lesions on the vulva were similarly treated. Twelve hours later the patient began to complain of pain and was given codeine sulfate for relief. Two days later another application of 25 per cent podophyllin was made. Two days after the second application the condylomata began to slough away. Twelve days later the vaginal mucosa was normal, the condylomata on the labia had also disappeared, and the patient could be examined without pain. One month later she was delivered normally.

CASE NO. 3

J. S., colored male, aged 4, was admitted to the Surgical Clinic at the Touro Infirmary. Examina-

tion revealed a condylomatous mass at the mucocutaneous border of the anus. Smears and Wassermann reaction were negative. The mother gave a history of a similar mass that had been removed surgically three weeks previously.

Twenty-five per cent podophyllin in mineral oil was applied. The patient experienced no pain although there was a slight reaction 24 hours later at the site of application. Seven days later the patient returned to the clinic and examination at that time showed that the condyloma had disappeared and all structures at the site of application were normal.

CASE NO. 4

S. R., white male, aged 16, was admitted to the clinic with venereal warts on the prepuce. Smears and Wassermann reaction were negative. A single application of 25 per cent podophyllin in oil caused all masses to disappear in six days.

SUMMARY

Although the exact etiology of condylomata acuminata remains unknown, an irritating discharge is the most common cause of the lesions.

The most frequent site of occurrence is the labia, the perineum, the vagina, the cervix, the prepuce, the edges of the anus, and, occasionally, the area just above the anal sphincter.

The growths are most common in young adults but may occur in infants.

Twenty cases of condylomata acuminata and venereal warts were treated with 25 per cent podophyllin in mineral oil and all were cured.

The pertinent data on four cases are recounted.

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THE USE OF ENTERIC-COATED PILLS IN ALLERGIC STATES*

A PRELIMINARY REPORT OF 82 CASES

NARCISSE F. THIBERGE, M. D.†
NEW ORLEANS

Although attempts to obtain specific desensitization in allergic states by oral therapy have for the most part been unsuccessful up to this time, reports indicate that the method is worthy of further study and trial. The possible advantages of this route are obvious: If it were successful, the patient would be spared the discomfort of injections and the inconvenience of frequent visits to his physician. He could continue therapy when visits to the physician were impossible. Finally, the antigen, if kept in a dry state, would remain active for long periods of time.

The chief difficulty in obtaining efficient hyposensitization by this method seems to lie in the fact that digestion alters the antigenic properties of products administered by the oral route, so that only a small and variable amount of unaltered antigen is absorbed. Touart¹ overcame this difficulty and prevented gastric digestion by administering pollen extracts in salol-coated pills, with satisfactory results. Although the salol coating does not prevent intestinal digestion of the pollen, recent experimental work² has furnished an explanation for his favorable results by the demonstration that gastric digestion has a much greater effect upon the antigenic power of ragweed pollen than is brought about by digestion by artificial pancreatic juice.

On the basis of these demonstrations, ragweed pollen, in enteric-coated pills, was administered to a group of patients, 82 in all, who were definitely allergic to ragweed and who had had hay fever or asthma or both during the pollinating season of the

*Presented at the Texas meeting of the Southwestern Allergy Forum, May, 1941.

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plant in previous years. The therapy was begun six weeks before the pollinating season and was continued beyond its duration. The dosage, which was adjusted to fit the exigencies of the individual case, varied from $\frac{1}{2}$ to 6 grains per day. The average dosage in successful cases was $\frac{1}{4}$ grain (15 mg.) three times a day until the disappearance of symptoms, and the same dose was given once a day thereafter during the remainder of the season. The dose was decreased if symptoms were produced or were aggravated by the medication, and was increased if relief was not obtained promptly.

That significant absorption of unaltered pollen occurred was evidenced by the appearance of allergic manifestations in a number of patients shortly after they had taken the pills. The therapeutic results indicate that successful desensitization can be accomplished by the oral route in a considerable proportion of cases.

Of the 82 patients treated, 13 remained free of all allergic manifestations during the ragweed season, 37 reported improvement noted, and in three instances the symptoms were more severe than in preceding years. The other patients were not followed up. Early in the course of treatment some of the patients suffered mild abdominal pain and a few had diarrhea, but these symptoms were readily controlled by regulation of the dosage.

Thirty patients failed to report regularly to the office or the clinic. Of the 52 who reported regularly, 24 had asthma, 23 hay fever, and five skin allergy. Some patients had both hay fever and occasional attacks of asthma. Of the 24 patients with asthma, six said that they had passed through the season with no severe spells and with greater comfort than they had ever experienced before, 15 were improved, in four no change was observed, and in three the symptoms were aggravated. Of the 23 patients with hay fever, seven said that they had passed through the season with no severe spells and with greater comfort than they had ever experienced before, 10 were improved, in five no change was observed,

and in one case the symptoms were aggravated.

The good results possible by this method, as well as other considerations connected with it, are proved more by individual cases than by tabulated data. The following case reports are therefore attached to this brief communication:

CASE NO. 1

A white female, 63 years of age, had had hay fever for 24 years. For the last three years asthma had been associated with it. Injections had been given at regular intervals and had been partially successful. Oral therapy was begun July 1, 1939, and continued during August and September. The pills had a laxative effect and occasionally produced local discomfort in the early days of treatment. The patient had two head colds in 1939, but did not have a single attack of hay fever during the entire pollinating season. She was practically without symptoms in the fall of 1940, and she has requested that she be given another pre-seasonal course of treatment this year.

CASE NO. 2

A white dentist, 60 years of age, had had typical fall hay fever for 13 years. He never reported for injections except at the height of the ragweed season, but with the passage of time the condition had gradually subsided. His first attack of asthma occurred August 28, 1940, and was relieved in three days by the use of enteric-coated pills. September 12 he had a brief spell of asthma, and September 25 a slight attack of hay fever. Each attack, although acute and occurring in an extremely sensitive patient, was promptly controlled by the use of enteric-coated pills. The initial dose was $\frac{1}{2}$ grain daily, and each time that it was increased the patient felt uncomfortable for about an hour, the period of discomfort occurring about an hour after the administration of the pills, and thus coinciding with the estimated time of absorption. The patient was in good health in April, 1941, and has arranged to resume oral therapy July 1.

CASE NO. 3

A white male, 35 years of age, did not know that he suffered from allergy until he had an attack of asthma in 1938. His severe skin reaction to the ragweed test and his previous history of "running colds," suggested that the condition was actually of longer duration. As he had never had any medication of any kind, he was an excellent subject for a full course of oral therapy. At the end of 1939, he commented that he had been "remarkably improved" during the whole pollinating season. He had no recurrence of asthma in 1940 or to date in 1941, and is at present on a daily dosage of $\frac{1}{4}$ grain.

CASE NO. 4

A white female, 32 years of age, had been extremely allergic to ragweed for some years. Although somnolence and gastric irritation occurred shortly after she was put on oral therapy, she was soon able to take doses of $\frac{1}{4}$ grain once or twice a day without discomfort. September, 1939 passed without incident, although September was usually her worst month, and the improvement persisted throughout 1940. She has arranged to resume oral therapy in July of this year.

CASE NO. 5

A white physician, 58 years of age, had suffered from mild hay fever all his life. In August, 1939, he had an attack of asthma. At this time he refused to continue parenteral therapy, and was given enteric-coated ragweed pills (1/12 grain daily). When the dosage was increased to $\frac{3}{4}$ grain daily, he developed migraine, and had an increased postnasal discharge, although his asthma had been relieved by the second day of treatment and coughing and wheezing had completely disappeared. On a maintenance dose (1/12 grain three times a day) he has had no recurrence of the asthma and his only complaint, in April, 1941, was an occasional slight nasal discharge. He has arranged for a pre-seasonal course of treatment this year.

CASE NO. 6

A white physician, 32 years of age, who could not tolerate subcutaneous doses of ragweed because of mild anaphylaxis, was tested with enteric-coated pills ($\frac{1}{4}$ grain). Each dose was followed by local, focal and general disturbances, and he discontinued treatment after the second day.

CASE NO. 7

A white female, 23 years of age, had had ragweed allergic asthma for three years, and had received parenteral therapy in 1938. Oral therapy was begun July 1, 1939. At first she could not tolerate doses of $\frac{1}{4}$ grain twice a day, but later daily doses of $\frac{1}{2}$ grain relieved her. In 1940 she could not tolerate the pills at all and refused to continue treatment.

CASE NO. 8

A white female, 56 years of age, had been treated for ragweed allergic asthma by injections since 1920, with variable relief. Oral therapy was begun in 1939, but produced no relief, and the patient actually suffered more than in any preceding year. When last seen, she had just recovered from a severe attack of pneumonia, which had apparently left her in better health than she had been before.

CASE NO. 9

A colored female, 38 years of age, had asthma for the first time in 1935, and urticaria in 1936. When she was first tested, in 1939, a hypodermic dose of 200 protein units produced a severe reaction, with rash, asthma, and pharyngeal edema. An oral dose of 1/12 grain produced restlessness,

headache and dizziness. When the dose was increased to $\frac{1}{4}$ grain three times a day, all discomfort disappeared. In 1939 the patient was more comfortable than at any time since her illness had begun, and in 1940 she also reported marked relief. As she was then transferred to another service, medication was discontinued, but when she was observed in 1941 it was found that improvement had persisted.

CASE NO. 10

A white female, 48 years of age, had had typical ragweed asthma since the age of 15 years. Parenteral therapy had been given with variable success. Small doses of enteric-coated pills made her nervous and caused migraine, and five hours after an oral dose of $\frac{1}{4}$ grain she had a severe attack of asthma. When once she was adjusted to a daily dose of $\frac{1}{4}$ grain, however, she was free from asthma throughout 1939, and a dose of $\frac{1}{2}$ grain daily has kept her practically free from both hay fever and asthma since that time.

CASE NO. 11

A white nun, 54 years of age, had had typical ragweed hay fever for 12 years. For four years it had been associated with asthma and with intermittent attacks of urticaria. Subcutaneous therapy was effective only when vaccine therapy was added. A full course of enteric-coated pills was begun July 1, 1939. An hour after the first doses were taken, a laxative effect was noted, the nose became dry, and sneezing occurred, followed by a discharge. A transient symmetrical erythema and conjunctivitis were also noted occasionally. As this patient is extremely allergic to ragweed, it was possible to check the rapidity of absorption of the antigen from the intestines by the blood stream, especially as house dust or other vaccines were withheld, so that the full effect of oral medication could be observed. Symptomatically, the patient has had 75 per cent relief by this method. In 1940 her attacks were milder, and she was not incapacitated, as she had been in preceding years. In March, 1941, she reported that her winter colds had been milder than they had been in preceding years, and that she considered herself in good health.

CASE NO. 12

A white physician, 64 years of age, who had formerly been in the army and was now a florist, had suffered from hay fever long before the exposure incident to his present occupation. In 1939 he had been partially relieved by a full course of uncoated ragweed pills. In 1940 he was given enteric-coated pills and suffered only two days, as compared with 12 days the preceding year. Previously, a subcutaneous injection of 8,000 pollen units had produced dramatic general symptoms. Oral doses of 1 grain each twice daily elicited focal symptoms of brief duration within an hour and a half or two hours, but later were borne comfortably. When the patient was seen in March,

1941, he was well, and was enthusiastic over the results of oral treatment with enteric-coated pills.

CASE NO. 13

A white female, 32 years of age, had had severe ragweed asthma for a number of years; she was first treated in 1935. In July, 1939, she was given ragweed pills in doses of $\frac{1}{2}$ grain three times a day. A dose of $\frac{1}{4}$ grain produced an acute attack of asthma, accompanied by conjunctivitis, of brief duration. For some time she has taken a maintenance dose of $\frac{1}{4}$ grain daily before and during the pollinating season. In 1939 she had one spell of asthma during the whole summer, and in September, 1940, she had hay fever for a single day. In March, 1941, she reported that for the first time since her illness began she had been free of asthma during the whole winter.

CASE NO. 14

A white female, 54 years of age, had had asthma for 21 years and had always been very allergic to ragweed. She had been observed since 1926. A single intrabronchial application of lipiodol (20 c. c. of 40 per cent solution) produced gratifying results. A full pre-seasonal course of enteric-coated ragweed pills, $\frac{1}{4}$ grain daily, was at first divided into three daily doses. Tachycardia, nervousness, flatulence, and finally a typical attack of asthma followed one or two hours after the first doses. Later a maintenance dose of $\frac{1}{2}$ grain three times daily was well tolerated. The patient was perfectly well in 1940 except for a brief two-hour spell of asthma in October, when the weather changed suddenly. She gained 15 pounds during the pollinating season. In March, 1941, she reported continued improvement.

Because of the length of time this patient has been observed there is no question of the superiority of the oral method over other types of therapy in her case.

CASE NO. 15

A white male, 45 years of age, a traveling radio expert, had suffered from severe hay fever for 30 years. It appeared every fall and was followed by sinus infection every winter. For the past 11 years parenteral therapy had been fairly successful.

As exact and intelligent cooperation could be expected from this patient, he was placed on oral ragweed therapy ($\frac{1}{4}$ grain daily) July 1, 1940. An hour and a half after the ingestion of the pills,

sneezing and headache frequently appeared, and sometimes a typical spell of hay fever developed.

August 15, 1940, the patient had a mild attack of hay fever, followed by 10 days of complete relief. Then he spent some time in Arkansas, where he never has hay fever. On his return to New Orleans, during the height of the pollinating season, he had hay fever for two days. In the patient's own opinion he has been very much relieved by this method of treatment. When he was seen in 1941 he was in excellent health; he has arranged for a pre-seasonal course of enteric-coated pills because he is convinced of the efficacy of this type of medication.

SUMMARY

1. Although the advantages of oral therapy in allergic states are obvious, attempts to obtain specific desensitization by this method have not been successful up to this time.

2. The chief difficulty in obtaining efficient hyposensitization by this method is apparently the alteration by digestion of the antigenic properties of products thus administered, so that only a small and variable amount of unaltered antigen is absorbed.

3. This difficulty has apparently been overcome by the use of enteric-coated pills.

4. Eighty-two patients definitely allergic to ragweed were treated by this method, with very promising results. The appearance of allergic manifestations in a number of the patients shortly after the pills were taken indicated that significant absorption of unaltered pollen had occurred.

5. Specimen case histories are cited, showing failures as well as moderately good and excellent results achieved by this method.

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THE PHYSICIAN IN WAR

A MESSAGE FROM PRESIDENT RAND

The prophetic utterance of the President that this generation had a rendezvous with destiny has proved too true. The crisis is here and our people are fighting for those ideals on which this nation was founded. In the travail of war and in the stress of peace the American physician has always willingly met the issue. This war shall prove no exception, even when we consider that today the battlefield is only a small part of

the general scheme of strategy; the doctors are in demand not only in the zone of combat and in the training camps, but in many other fields of endeavor. Today the physician must not only care for his regular practice, but find time to examine the millions who are to make up the nation's fighting forces. The teaching of the healing art to others must continue if we are to supply the thousands of physicians which the nation will need. Public Health can not slow up or curtail its activities, but on the contrary must assume additional burdens. The set-up of civilian defense in thousands of cities, formerly immune from attack before modern warfare disregarded civilized rules and introduced the bombing plane, demands the gratis services of many more physicians. The services of all physicians are needed; do not wait until such services are demanded, but willingly join up in whatever work your qualifications fit you.

There are thousands of medical men serving in the Army, the Navy and the Marine Corps; thousands of others in the U. S. Public Health Service, the Veterans Bureau and other essential war services. The innumerable Selective Service Boards of the nation are served willingly by untold numbers of physicians. Have you done your part? Our fighting forces may equal in numbers some of the gigantic armies of Europe; it is estimated that this may demand more physicians than we see in the offing. The law requires the registration of all males from eighteen to forty-four years of age subject to military duty, bringing millions to arms, and in this age group are many physicians. Consider the question seriously. The burden of the American doctor is heavy; let there be none who selfishly considers only his own weal and disregards his nation's call; he is unworthy of the name of physician. There is work for all.

THE DEFENSE STATUS

At the present time the doctors of the state are being asked to accept assignments in which they will be responsible for the medical aspects of civilian defense in their

communities. Every town with a population greater than 2500 will have, or already has had, appointed one of the local physicians who will be in charge of civilian defense arrangements. All physicians who enroll in civilian defense will come under the leadership of Dr. Rhett McMahon, of Baton Rouge, who is chairman of the appropriate committee.

The civilian doctors will be asked to organize in their community first aid classes, to give instructions in what to do in the event of bombing, how best to prevent contamination of the water supply, to encourage general typhoid immunization, to arrange for sanitary measures in the event of disruption of the sewerage system, how best to care for the injured, what to do in the event of the distributing of the civilian population, notably children, in areas which are not likely to be bombed, and to make arrangements for a host of other possible contingencies which should be taken care of and well organized before the possible bombing of an area. Of course it is obvious that in the event of enemy airplanes reaching Louisiana, the most likely points of bombing would be the large industrial centers and the areas where troops are concentrated. Monroe, Shreveport, and Minden in north Louisiana, Alexandria and the surrounding area in central Louisiana and in the southern part of the state Lake Charles, Baton Rouge with its enormous oil refineries, and New Orleans, would be the most likely places to be attacked. But in spite of the relative immunity of the smaller communities to bombing, nevertheless they may have to receive those who have been injured as result of air attack, it may be that the children will be evacuated to the smaller communities from bombed areas and plans should be made to take care of these problems.

The physicians who will be in charge of civilian defense in larger towns and cities will have a big job. It will require a great deal of time, expenditure of money, where it is to come from is a question, and careful organization. In the City of New Orleans, Dr. Val Fuchs who is Chief, Emer-

gency Medical Service, and his Medical Advisory Council of the Orleans Parish Medical Society have been working for some weeks diligently and industriously so that their arrangements are virtually consummated, although there is still much to be done.

Turning to another aspect of defense, the need for young medical men for the organized services of the Government is still an acute problem. The forms that were published in the New Orleans Medical and Surgical Journal and the Journal of the American Medical Association, have caused a certain amount of confusion. These forms were intended, it is now discovered, only for those who are willing to volunteer for immediate service. In a short time the Procurement and Assignment Service will send out to all physicians a new questionnaire and will prepare a list of military, governmental and other agencies requiring the services of physicians.

PURE MILK

One of the big advances which has developed in the course of the last quarter of a century in the field of public health has been the improvement in the quality of milk that is served to the customer. Needless to state, it is obvious why this was one of the early measures taken to control disease. Milk, after all, is a food which is used by all the population to a greater or lesser extent, but to infants and small children it makes up a good part of their daily ration. Impure milk necessarily is followed by enteric diseases and disorders, by malnutrition and by continued ill health if specific illnesses do not develop.

It was not so many years ago that raw milk was served in open cans and distributed in pitchers and tins handed by the housewife to the milkman. Contamination, of course, was extremely common and this defilement might occur anywhere along the line, from the udder of the cow through the various steps the milk went, ultimately to reach the consumer.

Nowadays milk inspectors keep watch over the cleanliness of dairies; they watch

to see that there is proper sanitary distribution of milk. In so far as control over the milk is concerned, for the most part it is excellent, but there are bound to be slips somewhere, sometimes, in getting the milk to the one who uses it for food and drink. A small dairy with one, two or three cows cannot be kept constantly under surveillance; bottles may not be clean at the point of distribution and there are many ways in which contamination might occur.

Just at the present time the most important problem, however, has not to do with the intestinal disorders that develop as result of the drinking of milk with a high bacterial count, but has more to do with the transmission of specific diseases from the cow to the human being by way of milk. Undulant fever has become one of the real problems of preventive medicine. The disease is not one that necessarily is lethal by any means. As a matter of fact, the mortality rate is relatively low but the long continued invalidism, extending sometimes for a year or two, is a real economic problem. At the present time in the State of Louisiana, veterinarians of the State Livestock Commission and of the Agricultural Department of the United States Government are waging an extensive campaign against tuberculosis and undulant fever in cows. This is a long, hard job and may be fruitful only for a time unless a constant watch is kept over the herds.

In view of the innumerable difficulties of obtaining an absolutely pure milk supply which would require an expenditure that would gross enormous in the state's expenditures of money, almost prohibitive, it would be the part of wisdom to compel producers of milk to pasteurize the milk and to prohibit the sale of all milk that is not pasteurized. Pasteurization of milk is relatively inexpensive, it can be carried out by any farmer who has a large herd or by a group of farmers who have only a few cows apiece, and would ensure for the drinkers a safe supply of milk.

If members of the Legislature knew by personal observation of their own friends and families of the seriousness of undulant

fever, they would take steps to provide for universal pasteurization of milk, unless the milk was certified, which milk is extremely expensive and most costly.

HEPATORENAL SYNDROME

Reich¹ has presented a review of the recent advances in the hepatorenal syndrome which deserves comment because, as he writes, this is one of the most recent and fascinating of clinical entities. Boyce,² of New Orleans, has been particularly interested in this subject and has presented it often to the medical profession locally and has published in the *Journal* results of his studies of the condition.

Although this syndrome has been hazily recognized for nearly eighty years, it remained for Gordon Heyd³ to clarify in 1924 this syndrome which antedates a few hours or a few days the death of patients who die after biliary tract operations. This author described the name of the syndrome as "liver death." Others have spoken of it as "liver shock," "renohepatic syndrome," "hepatonephritis" and "kidney-liver syndrome." Heyd and Boyce both found approximately the same mortality figures, namely 1.4 per cent of the total number of patients operated upon but accounting for 20 per cent of all deaths.

Heyd described his patients as falling into three different groups. Since that time there have been additional and revised classifications but Heyd's original one seems to be as satisfactory as any. His cases were: (1) Liver death with marked hyperpyrexia and coma; rapidly developing coma preceded by stupor and followed by death in 18-36 hours; (2) liver deaths associated with constantly diminishing jaundice and a slowly developing stupor and coma, a clinical picture which resembles the "cholemic" death of cirrhosis of the liver; (3) liver death in the presence of some unrelated kidney disease, with anuria, the development of a syndrome resembling shock within 48 hours, ultimate failure of water elimination and marked increase in the blood of nitrogen waste products. In this instance renal function and water balance plus chem-

ical changes are the outstanding manifestations.

Boyce, in explaining the mechanism of the condition, states that biliary tract disease is always associated with some degree of liver damage, not sufficiently pronounced to impede in any way ordinary functions of the organ. When an operation is undertaken, additional strain is thrown on the liver with which it is unable to cope. The strain, or factors, include such things as the anesthetic, surgical manipulation and changes in the interhepatic and biliary pressure. The detoxifying action of the liver disappears as result of failure in function of the organ and necrotic changes take place in the liver cells. Subsequently the kidneys, which then have to assume the detoxifying mechanism of the body, are unable to take up the additional load. The function of the kidney is lost. It is unable to handle even normal metabolic waste products, let alone the additional toxins that are liberated by the liver cells which are primarily injured by the hypothetical toxic

substances. Boyce believes this whole process is a single pathologic one, with the hepatic changes preceding the nephritic.

To prevent the syndrome, various factors should enter into the study and care of the patient, notably liver function tests and kidney function tests before operation, nitrous oxide or local anesthetic to be used at the operation. Normal water balance and blood chlorides should be maintained. The liver function should be protected by glucose intravenously, calcium chloride and blood transfusions. The operation should be done rapidly.

If the possibility of such a catastrophe as sudden death after an operation on the liver and bile passages is always borne in mind by the surgeon and if preventive measures are taken, it should result in a marked reduction of the mortality following this type of operation.

1. Reich, N. E.: A review of recent advances in the hepatorenal syndrome, *Internat. Clinics*, 4:135, 1941.
2. Boyce, F. F., and McFetridge, E. M.: Liver deaths in surgery, *New Orleans M. & S. J.*, 88:563, 1936.
3. Heyd, Gordon: Liver and its relation to chronic abdominal infection, *Ann. Surg.*, 79:55, 1924.

HOSPITAL STAFF TRANSACTIONS AND CLINICAL MEETINGS

SOUTHERN BAPTIST HOSPITAL New Orleans

The regular monthly meeting of the Clinical Staff of Southern Baptist Hospital was held Tuesday, January 27, at 8:00 p. m. Election of officers for the coming year was held.

The scientific program consisted of the following: "Kodachrome Photography in Plastic Surgery" by Dr. Waldemar Metz; "Case Report of Regional Enteritis" by Dr. F. E. Lamothe; death report.

CHARITY HOSPITAL New Orleans

At a meeting of the Charity Hospital Staff, held on December 16, 1941, the following case reports were presented:

SITUS TRANSVERSUS

Dr. Edgar Hull presented a patient with mirror picture dextrocardia and situs transversus, who also had osteitis deformans. The electrocardiogram, besides showing the typical inversion of all complexes in lead one, revealed predominance of the functional left ventricle. X-rays showed characteristic bone changes of Paget's disease. The serum

calcium and phosphorus were normal, the serum phosphatase elevated to 13.5 Bodansky units.

MIKULICZ'S SYNDROME

Dr. John S. La Due represented the case of a 62 year old colored laborer, who stated that he had noticed painless swelling in his neck, axillae, groin and upper eyelids for four months. During the same period, he experienced dryness of the mouth and tongue and undue thirst and found that he could not close his eyes completely or move his facial muscles. These symptoms were associated with weakness and a 20 pound weight loss.

On examination, symmetrical, non-tender enlargement of the lacrimal, salivary, axillary and inguinal glands was found and bilateral, peripheral facial nerve palsies were apparent. A teleoroentgenogram showed enlargement of the superior mediastinum with infiltration of the right midlung. Blood studies were compatible with subacute lymphatic leukemia.

Clinically, this is termed Mikulicz's syndrome and is characterized by symmetrical, painless enlargement of the lacrimal and salivary glands, soreness and dryness of the mouth and facial palsy in about half the cases. It may be a benign primary disease, but more frequently is secondary to leukemia,

lymphoblastoma, tuberculosis, or sarcoidosis.

The diagnosis of the lymph node biopsy in this patient was malignant lymphoblastoma. He has not responded to a full course of deep x-ray therapy.

BUERGER'S DISEASE IN A NEGRESS

Dr. George R. Meneely presented J. E., a 34 year old colored woman, who came to Charity Hospital on November 11, 1941, complaining chiefly of epigastric pain. She had been in Charity Hospital before, in October 1940, at which time she had been having intermittent claudication of the left lower leg for three years, and numbness and pain in the same region for three months. In 1937 the left great toe had been amputated for gangrene at Mobile Hospital.

Other complaints at that time were epigastric pain, vomiting of small amounts of blood, and tarry stools. She also had twinges of precordial pain, and noted nocturia two or three times nightly. Family history was irrelevant.

Physical examination at that time was only unusual in that she had slight epigastric tenderness, and the left lower leg was dark and discolored, slightly atrophied, and without arterial pulsations in the foot.

Routine laboratory studies at that time were essentially negative. The electrocardiogram showed only slight lowering of T_2 and was thought to indicate no evidence of myocardial disease.

The clinical impression was thrombo-angiitis obliterans, but sympathetic block was tried, yet still gangrene of toes supervened. Mid-thigh amputation was performed and she had an uneventful postoperative course. The epigastric distress had subsided and the impression was pylorospasm.

Examination of the amputated leg by the pathologist showed typical changes of thrombo-angiitis obliterans: The arteries, veins, and nerves were bound together with fibrous tissue, and in the walls of the vessels there was a marked increase of fibroblasts with laying down of collagen. The lumen of the vessels was nearly occluded by organized and canalized thrombus. It was the impression of the pathologist that the picture was pathognomonic.

The present admission was for recurrence of epigastric distress, hematemesis, melena, and moderate weight loss. She also complained of slight blurring of vision, and of dyspnea with exertion for some months.

Examination showed only epigastric tenderness. She was studied by x-ray after barium by mouth, and an ulcer crater in the cap of the duodenum was seen. Other laboratory studies were negative, except for an anemia of 3,800,000 red cells with 70 per cent hemoglobin, stool positive for occult blood, and inverted T_2 and T_4 in the electrocardiogram.

She was presented for two reasons: First, Buerger's disease is very rare in colored women, there having been only four such cases among 97 cases discharged from Charity Hospital with this

diagnosis in the past four and one-half years, a period of time when 267,882 patients were admitted. Second, she probably illustrates the fact that Buerger's disease involves arteries and veins other than the peripheral ones in many cases. The literature shows many reports of involvement of abdominal and thoracic organs due to involvement of the corresponding vessels in the changes characteristic of thrombo-angiitis obliterans. The peptic ulcer and the evidence of ischemia in the ventricle are ascribed to this process in her case.

J. T. NIX CLINIC New Orleans

At a staff meeting in December, 1941, Dr. James T. Nix, Jr., presented the following paper:

FURTHER STUDIES ON THE USE OF COLLODION IN THE PREPARATION OF THE OPERATIVE FIELD

Ten months ago, I published the original article on the use of collodion in the preparation of the operative field.¹ Since then, the British Army Medical Corps has recognized its practical value in war surgery.² Hence, with the actuality of American participation in this second World War, I present this summary of studies, as yet incomplete.

In the surgical scene, the skin alone defies sterilization. Micro-organisms float forth from its pores, in a continual stream of sudoriferous and sebaceous fluid. The hands of the operating team are sheathed in rubber; the operative site merits but does not receive mechanical protection. Ordinary preoperative skin preparations partially and temporarily disinfect but fail to sterilize the skin. The painting or spraying of rapid-drying flexible collodion forms a smooth, sterile, and impermeable coating of the operative site.

Collodion: There are two types of collodion: (1) ordinary (or non-flexible), and (2) flexible. Ordinary collodion is prepared by dissolving pyroxylin (guncotton) in a mixture of 75 per cent ether and 25 per cent alcohol. The ether content gives it a desirable fat solvent action. Flexible collodion is ordinary collodion with camphor and castor oil in solution; it is less contractile, less brittle, and forms a protective covering that remains impermeable longer. Flexible collodion was used exclusively in my clinical experimentation.

Collodion is cheap, transparent, and sterile *per se*. It is easy to obtain, keep, apply, and remove; it does not irritate the skin. Collodion dries in thirty seconds, hermetically sealing the pathogenic organisms of the skin.

Ether boils at 35° C. (95° F.), hence collodion must be kept in a cool place. Collodion is highly inflammable and should be kept in a well closed container, removed from fire, and unexposed to light.

Application of Collodion: Flexible collodion may be painted or sprayed on the operative field. Ordinary preoperative preparation of the skin with alcohol and iodine preceded its application in all clinical cases; this added precaution might not be

necessary in war surgery. Multiple coats of flexible collodion were painted or sprayed on the area circumscribing the line of intended incision.

(a) *Painted*—a gauze sponge and metal forceps are the only necessary equipment.

(b) *Sprayed*: (1) Electric spray outfit (De Vilbiss): This equipment, operating on compressed air, can be purchased for less than thirty dollars. It is compact and reliable.

(2) Hand power spraying outfit (De Vilbiss): This equipment, operating on compressed air, can be purchased for less than ten dollars. It is bulky, but reliable.

(3) Atomizer (De Vilbiss #260): After repeated use, the atomizer will clog with collodion precipitate. To prevent this inconvenience, I have diluted collodion with two or three parts of ether. This atomizer may be purchased for two dollars.

Methods of Study: (a) Experimental: Using Novak's method of culture of the skin of the abdominal wall³ and a reluctantly donated abdomen, I have tested the sterility produced by merthiolate, tincture of iodine, flexible collodion, ordinary collodion, flexible collodion with 1 per cent tincture of iodine, and ordinary collodion with 1 per cent

tincture of iodine. Controls of normal saline were used. Cultures were taken from each chemically treated area at intervals of one-quarter hour, and one-half hour after each application. The results, at present, would seem to show that collodion, whether ordinary or flexible, with or without tincture of iodine, offers maintained sterility.

(b) Clinical: In a score of cases, flexible collodion, whether painted or sprayed, did not irritate the skin. No wound infection was discovered in this very small and inconclusive number of cases.

The gynecologic and obstetric surgeon may shield the perineum from the anus with flexible collodion. The abdominal surgeon may use it to help prevent skin irritation at the site of colostomies.

War surgery emphasizes the advantages of collodion.

REFERENCES

1. Nix, J. T., Jr.: The collodion spray in the preparation of the operative field, *New Orleans M. & S. J.*, 93:480, 1941.
2. Bailey, Hamilton: *Surgery of Modern Warfare*, The Williams and Wilkins Company, Baltimore, 1941.
3. Novak, M., and Hall, H.: Method for determining efficiency of preoperative skin sterilization, *Surgery*, 5:560, 1939.

TRANSACTIONS OF ORLEANS PARISH MEDICAL SOCIETY

CALENDAR OF MEETINGS

- | | | | |
|--------------|---|--------------|---|
| February 2. | Orleans Parish Medical Society, Board of Directors, 8 p. m. | February 18. | Clinico-pathologic Conference, Charity Hospital Morgue Amphitheater, 1:30 p. m.
Charity Hospital Surgical Staff, 8 p. m. |
| February 3. | Eye, Ear, Nose and Throat Staff, 8 p. m. | | Clinico-pathologic Conference, Hotel Dieu, 8:15 p. m. |
| February 4. | Clinico-pathologic Conference, Charity Hospital Morgue Amphitheater, 1:30 p. m.
Hutchinson Memorial Clinic Staff, 8 p. m.
Mercy Hospital Staff, 8 p. m. | February 19. | Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m. |
| February 5. | Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m. | February 20. | I. C. R. R. Hospital Staff, 12:30 p. m.
New Orleans Hospital and Dispensary for Women and Children Staff, 8 p. m. |
| February 9. | Orleans Parish Medical Society, Scientific Meeting, 8 p. m. | February 24. | Baptist Hospital Staff, 8 p. m. |
| February 10. | Eye, Ear, Nose and Throat Society, 8 p. m. | February 25. | Clinico-pathologic Conference, Charity Hospital Morgue Amphitheater, 1:30 p. m.
French Hospital Staff, 8 p. m. |
| February 11. | Clinico-pathologic Conference, Charity Hospital Morgue Amphitheater, 1:30 p. m.
Touro Infirmary Staff, 8 p. m.
Woman's Auxiliary, Orleans Parish Medical Society, Orleans Club, 3 p. m. | February 26. | Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m. |
| February 16. | Hotel Dieu Staff, 8 p. m.
Clinico-pathologic Conference, Baptist Hospital, 8 p. m. | February 27. | L. S. U. Faculty Club, 8 p. m. |
| February 17. | Charity Hospital Medical Staff, 8 p. m. | | |

1942 ANNUAL MEETING

The Arrangement Committee, under the Chairmanship of Dr. John T. O'Ferrall, has been very active in making plans for the 1942 meeting. There

will be a rearrangement of the program due to the fact that it has been deemed advisable to lengthen the meeting to four days. It is planned that the House of Delegates begin transaction of business on the morning of April 27 and that the scientific program be carried through the morning of April 30.

Below are listed names of members of the Advisory Committee and chairmen of the various subcommittees on arrangement. Do not fail to contact these doctors if there is any information or assistance you desire or if you have any constructive suggestions to offer in regard to the meeting.

Advisory Committee—Drs. Henry Blum, W. R. Buffington, C. Grenes Cole, A. V. Friedrichs, Val Fuchs, Roy B. Harrison, Edwin L. Lawson, E. L. Leckert, Walter E. Levy, Leon J. Menville, and Edwin L. Zander.

Badges—Dr. James E. Bailey.
 Banquet—Dr. Edmund Connely.
 Commercial Exhibits—Dr. Max M. Green.
 Decorations—Dr. C. L. Cox.
 Entertainment—Dr. E. A. Ficklen.
 Finance—Dr. H. W. E. Walther.
 Golf—Dr. E. L. King.
 Halls and Meeting Places—Dr. Howard Mahorner.

Hotels—Dr. Sam Hobson.
 Lanterns—Dr. John T. Sanders.
 Luncheons—Dr. Cassius L. Peacock.
 Publicity—Dr. T. B. Sellers.
 Registration—Dr. H. Theodore Simon.
 Scientific Exhibits—Dr. Waldemar R. Metz.
 Signs—Dr. A. F. Hebert.
 Transportation—Dr. H. O. Ernst.
 Women Physicians—Dr. Maud Loeber.

Many scientific and commercial exhibits have already been secured; however, if other members wish to have exhibits, it is requested that they get in touch with the Chairman of the Committee on Scientific Exhibits at once. Also if members know of commercial firms which should exhibit and have not applied for space, they should refer them to the Chairman of the Committee on Commercial Exhibits.

The Roosevelt Hotel has been selected as headquarters for the meeting. Reservations can be made by writing the Chairman of the Committee on Hotels, the office of the Society, or to the hotel direct.

Chairmen of the various scientific sections were appointed several months ago by the president of the Society. The program for each section must be completed by the twenty-seventh of this month; therefore all who desire to present a paper at the meeting should contact the chairman of the section on which they wish to appear, immediately. Names of the chairmen are listed below;

Bacteriology and Pathology—Dr. John H. Connell, New Orleans.

Eye, Ear, nose and Throat—Dr. Noel T. Simmonds, Alexandria.

Gastro-enterology—Dr. Gordon McHardy, New Orleans.

General Surgery—Dr. J. E. Heard, Shreveport.

Gynecology and Obstetrics—Dr. Rhett McMahon, Baton Rouge.

Medicine and Therapeutics—Dr. J. P. Sanders, Shreveport.

Nervous Diseases—Dr. M. S. Freiman, Pineville.

Orthopedic Surgery—Dr. T. M. Oxford, Shreveport.

Pediatrics—Dr. Charles J. Bloom, New Orleans.

Public Health and Sanitation—Dr. Joseph S. D'Antoni, New Orleans.

Radiology—Dr. E. C. Samuel, New Orleans.

Urology—Dr. Eugene B. Vickery, New Orleans.

From all indications the meeting this year will be one of the most interesting and successful in the history of the Society, and it is hoped that every member will make an effort to attend.

During the month of January the Society held two meetings. One was the installation meeting and the other a regular scientific meeting.

NEW OFFICERS

On January 12, 1942, the following physicians were installed as officers of the Orleans Parish Medical Society for the year 1942: Dr. Edgar Burns, president; Dr. H. B. Alsobrook, president-elect; Dr. E. L. Leckert, first vice-president; Dr. William B. Clark, second vice-president; Dr. Daniel J. Murphy, third vice-president; Dr. Edwin L. Zander, secretary; Dr. A. V. Friedrichs, treasurer; Dr. Max M. Green, librarian; Dr. Paul G. Lacroix, Dr. J. O. Weilbaecher, Jr., and Dr. John Menville, additional members to the Board of Directors.

SCIENTIFIC MEETING

The program of the scientific meeting held January 26, 1942, was as follows:

Symposium on Tumors of the Central Nervous System.

a. The Pathology of Tumors of the Central Nervous System

By Dr. Hugh Page Newbill

b. The Psychiatric Aspect of Cerebral Tumors

By Dr. H. Randolph Unsworth

c. Diagnostic Factors in Cranial Tumors

By Dr. Lewis A. Golden

d. Brain Tumors

By Dr. Gilbert C. Anderson

e. Tumors of the Spinal Cord

By Dr. Dean H. Echols

NEWS ITEM

Dr. R. L. DeBuys was recently elected president for 1942 of the New Orleans Golf Association.

Dr. Vincent J. Derbes was recently elected to associate membership in the Society for the Study of Asthma and Allied Conditions.

Dr. Alton Ochsner was elected secretary of the Southern Surgical Association at a recent meeting of this organization at Pinehurst.

Dr. Prudence E. Prouet was recently promoted to the rank of captain in the United States Army.

Dr. B. B. Weinstein will address the History of Medicine Society at Tulane University on February 12 on "Three Men from Padua." On March 13, Dr. Julius L. Wilson will speak on "The History of Tuberculosis" and on April 10 Miss Mary Louise

Marshall will speak on "Confederate Medicine." These meetings are held at 8 o'clock in the Hutchinson Memorial Building and are open to the laity as well as the medical profession.

TREASURER'S REPORT

Balance on hand November 20, 1941.....	\$5,101.28
Credits, December	2,420.81
Total Credits	\$7,522.09
Expenditures, December	1,772.06
Balance on hand December 31, 1941.....	\$5,750.03

EDWIN L. ZANDER, M. D.,
Secretary.

LOUISIANA STATE MEDICAL SOCIETY NEWS

C A L E N D A R

PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
East Baton Rouge	Second Wednesday of every month	Baton Rouge
Morehouse	Second Tuesday of every month	Bastrop
Orleans	Second Monday of every month	New Orleans
Ouachita	First Thursday of every month	Monroe
Sabine	First Wednesday of every month	
Second District	Third Thursday of every month	

TO MEMBERS OF LOUISIANA STATE MEDICAL SOCIETY

Dear Doctors:

The Louisiana State Medical Society will meet in New Orleans, April twenty-seventh through thirtieth.

Your Committee on Scientific Exhibits is anxious to make this part of our program a success and would like to have as many representative and instructive contributions as possible. If you desire to have an exhibit at the meeting kindly advise us by communicating with the office of the Society, 1430 Tulane Avenue, so that we may furnish you with a form on which you may indicate how much space you will need.

The committee will be delighted to have your exhibit and will cooperate with you to the fullest extent in regard to lighting, space and position.

Thank you for your prompt attention in this matter.

Yours very fraternally,
WALDEMAR R. METZ, M. D., Chairman,
Committee on Scientific Exhibits.

THE NEW HEALTH OFFICER

Dr. Christopher L. Mengis has been appointed by Governor Jones as President of the Louisiana State Board of Health to succeed Dr. John H. Musser. Dr. Mengis will take office February 1.

The selection of this new health officer should

meet with the universal approval of the medical profession and the laity. Dr. Mengis has been active in organized medicine and at various times has held the position of president of the Fifth District Medical Society, secretary-treasurer and president of the Iberia Parish Medical Society. He is a member not only of the State Medical Society but of national medical societies.

Dr. Mengis graduated from Tulane in 1900. He served for six years under the United States Public Health Service in Central America. He then practiced medicine in Madison Parish and at the start of the World War volunteered and served in this country and Puerto Rico until his discharge in 1919 with the rank of Major. After the war, Dr. Mengis practiced medicine in northern Louisiana. In 1936 he was placed on the staff of the State Board of Health and sent away for training, obtaining his degree of Doctor of Public Health. He was in charge of the Division of Crippled Children until 1939 when he was sent to head a parish health unit, becoming the Director of the Iberia Parish Health Unit, where he built up undoubtedly one of the best parish health units in the state.

Dr. Mengis brings to his new position the experiences of a practitioner of medicine with the training of a public health officer. He will have a sympathetic understanding of the problems of the practice of medicine and the practicing doctor. All success is wished to him in his new position.

ENROLLMENT FOR SERVICE IN THE ARMY AND NAVY

Last month The Journal published an urgent request to all physicians of the United States to fill out the questionnaire published in that issue and mail it at once to Dr. Sam F. Seeley, Executive Officer of the Procurement and Assignment Service, Washington, D. C., indicating their availability to serve the nation in the present emergency. The response to this call to the medical profession to date has been highly gratifying. The following statement to that effect, with additional instructions, has been received from the Directing Board of the Procurement and Assignment Service:

The response of the physicians of the country to the Procurement and Assignment Service request for enrollment of those now ready for immediate service in the army or the navy is highly gratifying. All names are being processed, and those who meet the present demands of the Surgeon Generals will receive application forms and authority to appear for physical examination at an early date. All who are now ready for immediate duty should forward applications to the Procurement and Assignment Service at once. It is not the intention of the Procurement and Assignment Service to register every physician, dentist and veterinarian at the present time. Only those available for immediate assignments should register at this time. The physical requirements of all military, governmental, industrial and civil agencies will be published in national and state journals immediately. On the basis of this information every physician, dentist and veterinarian will be able to make a self appraisal of his physical qualifications. Within a few weeks the Procurement and Assignment Service will mail to all individuals a form on which they will be asked to state their preferences for assignment to all agencies of national defense which require medical, dental and veterinary personnel and for service in communities in public health and other civil categories. In this way every physician, dentist and veterinarian of the country will be able to lend maximum support to the national emergency. In order to meet the expanding needs of the military services, every physician immediately available for duty should mail his application blank to the Procurement and Assignment Service at once. All others will be given an opportunity to volunteer in the near future.

FRANK H. LAHEY, M.D.,	C. WILLARD CAMALIER,
Chairman.	D.D.S.
JAMES E. PAULLIN, M.D.	SAM F. SEELEY, Major,
HARVEY B. STONE, M.D.	M.C., U.S. Army,
HAROLD S. DIEHL, M.D.	Executive Officer.

CIVILIAN DEFENSE

HEALTH AND MEDICAL COMMITTEE

President Roosevelt has appointed Dr. George Baehr, Chief Medical Officer of the Office of Civilian Defense, to be a member of the Health

and Medical Committee of the Office of Defense Health and Welfare Services. Dr. Irvin Abell, Louisville, Kentucky, chairman of the Committee on Medical Preparedness of the American Medical Association, is chairman of the Health and Medical Committee and other members are the Surgeon General of the U. S. Army, Major General James C. Magee; the Surgeon General of the U. S. Navy, Rear Admiral Ross T. McIntire; the Surgeon General of the U. S. Public Health Service, Dr. Thomas Parran, and the chairman of the Division of Medical Sciences, National Research Council, Dr. Lewis W. Weed, Baltimore. The Office of Defense Health and Welfare Services is a part of the Office for Emergency Management which in turn is part of the Executive Office of the President. The director of the ODHWS is Paul V. McNutt, who is also Federal Security Administrator.

RECOMMENDATIONS TO ALL PHYSICIANS WITH REFERENCE TO THE NATIONAL EMERGENCY

I. Medical Students

A. All students holding letters of acceptance from the Dean for admission to medical colleges and freshmen and sophomores of good academic standing in medical colleges should present letters or have letters presented for them by their deans to their local boards of the Selective Service System. This step is necessary in order to be considered for deferment in Class II-A as a medical student. If local boards classify such students in Class I-A, they should immediately notify their deans and if necessary exercise their rights of appeal to the Board of Appeals. If, after exhausting such rights of appeal, further consideration is necessary, request for further appeal may be made to the State Director and if necessary to the National Director of the Selective Service System. These officers have the power to take appeals to the President.

B. Those junior and senior students who are disqualified physically for commissions are to be recommended for deferment to local boards by their deans. These students should enroll with the Procurement and Assignment Service for other assignment.

C. All junior and senior students in good standing in medical schools, who have not done so, should apply immediately for commission in the Army or the Navy. This commission is in the grade of Second Lieutenant, Medical Administrative Corps of the Army of the United States, or Ensign H.V. (P) of the United States Navy Reserve, the choice as to Army or Navy being entirely voluntary. Applications for commission in the Army should be made to the Corps Area Surgeon of the Corps Area in which the applicant resides and applications for commission in the Navy should be made to the Commandant of the Naval District in which the applicant resides. Medical R.O.T.C. students should

continue as before with a view of obtaining commissions as First Lieutenants, Medical Corps, upon graduation. Students who hold commissions, while the commissions are in force, come under the jurisdiction of the Army and Navy authorities and are not subject to induction under the Selective Service Act. The Army and Navy authorities will defer calling these officers to active duty until they have completed their medical education and at least 12 months of internship.

II. *Recent Graduates*

Upon successful completion of the medical college course, every individual holding commission as a Second Lieutenant, Medical Administrative Corps, Army of the United States, should make immediate application to the Adjutant General, United States Army, Washington, D. C., for appointment as First Lieutenant, Medical Corps, Army of the United States. Every individual holding commission as Ensign H.V. (P), U. S. Navy Reserve, should make immediate application to the Commandant of his Naval District for commission as Lieutenant (J.G.) Medical Corps Reserve, U. S. Navy. If appointment is desired in the grade of Lieutenant, (J.G.) in the regular Medical Corps of the U. S. Navy, application should be made to the Bureau of Medicine and Surgery, Navy Department, Washington, D. C.

III. *Twelve Months Intern*

All interns should apply for a commission as First Lieutenant, Medical Corps, Army of the United States, or as Lieutenant (J.G.), United States Navy or Navy Reserve. Upon completion of 12 months' internship, except in rare instances where the necessity of continuation as a member of the staff or as a resident can be defended by the institution, all who are physically fit may be required to enter military service. Those commissioned may then expect to enter military service in their professional capacity as medical officers; those who failed to apply for commission are liable for military service under the Selective Service Acts.

IV. *Hospital Staff Members*

Interns with more than 12 months of internship, assistant residents, fellows, residents, junior staff members, and staff members under the age of 45, fall within the provisions of the Selective Service Acts which provide that all men between the ages of 20 and 45 are liable for military service. All such men holding Army commissions are subject to call at any time and only *temporary deferment* is possible, upon approval of the application made by the institution to the Adjutant General of the United States Army certifying that the individual is temporarily indispensable. All such men holding Naval Reserve commissions are subject to call at any time at the discretion of the Secretary of the Navy. Temporary deferments may be granted only upon approval of applications made to the Surgeon General of the Navy.

All men in this category who do not hold commissions should enroll with the Procurement and Assignment Service. The Procurement and Assignment Service under the Executive Order of the President is charged with the proper distribution of medical personnel for military, governmental, industrial, and civil agencies of the entire country. All those so enrolled whose services have not been established as essential in their present capacities will be certified as available to the Army, Navy, governmental, industrial, or civil agencies requiring their services for the duration of the war.

V. *All Physicians Under Forty-five*

All male physicians in this category are liable for military service and those who do not hold commissions are subject to induction under the Selective Service Acts. In order that their service may be utilized in a professional capacity as medical officers, they should be made available for service when needed. Wherever possible, their present positions in civil life should be filled or provisions made for filling their positions, by those who are (a) over 45, (b) physicians under 45 who are physically disqualified for military service, (c) women physicians, and (d) instructors and those engaged in research who do not possess an M. D. degree whose utilization would make available a physician for military service.

Every physician in this age group will be asked to enroll at an early date with the Procurement and Assignment Service. He will be certified for a position commensurate with his professional training and experience as requisitions are placed with the Procurement and Assignment Service by military, governmental, industrial or civil agencies requiring the assistance of those who must be relocated for the duration of the national emergency.

VI. *All Physicians Over Forty-five*

All physicians over 45 will be asked to enroll with the Procurement and Assignment Service at an early date. Those who are essential in their present capacities will be retained and those who are available for assignment to military, governmental, industrial or civil agencies may be asked by the Procurement and Assignment Service to serve those Agencies.

The maximal age for original appointment in the Army of the United States is 55. The maximal age for original appointment in the Naval Reserve is 50 years of age.

All inquiries concerning The Procurement and Assignment Service should be sent to The Executive Officer, 5654 Social Security Building, 4th and Independence Avenues, SW, Washington, D. C., and not to individual members of the Directing Board or of committees thereof.

Inasmuch as the above material represents one of the most important responsibilities of the medical profession at the present time, it is the opinion

of the Assignment and Procurement Service that it deserves the most prominent place in your Journal it can be given. It is of equal importance to doctors themselves since it clarifies quite largely the demands which will be made upon the medical profession.

Sincerely yours,

FRANK H. LAHEY, M. D., Chairman
HARVEY B. STONE, M. D.
JAMES E. PAULLIN, M. D.
HAROLD S. DIEHL, M. D.
C. WILLARD CAMALIER, D. D. S.
SAM F. SEELEY, M. D.,
Executive Officer.

THE SPIRIT OF 1942

In reply to the recent questionnaire sent out by the Committee on Medical Preparedness of the State Society, the following letter was received, exemplifying the patriotism of our Louisiana doctors:

"Had my gallbladder removed some ten years ago so can only do part time work. Have practiced since 1894 and for last two years have suffered with my heart; angina pectoris which at times holds me in bed eight or ten days.

"Still am at my Country's call and if needed call—please. I am an American."

Certainly such a spirit as this is typical of the tradition of the medical profession of this state.

MORALE ADVICE

The following advice was first posted in Bristol, England, and from there spread to a goodly part of England. It is suggested and hoped that doctors will copy it and place it on their office wall or office table where it may be seen and read by patients.

MORALE

THE SECRET WEAPON THAT WILL WIN THE WAR

Congress can't vote it.

Dollars won't buy it.

It's YOUR job to build it.

PUT UNITY INTO YOUR COMMUNITY

Unity starts with U. To win the war, stop private wars at home, on the job, with the neighbors. Honest apology ends friction—starts teamwork. If we all pull together, we'll all pull through.

BE A RUMOR-STOPPER

Rumors help the enemy. Trace the facts. Face the facts. Don't exaggerate.

Make your community gossip-proof

smear-proof

panic-proof

fear-proof.

Every patriot shoots a rumor dead on sight!

MEET SHORTAGE BY SHARING

Use all of everything. Don't hoard. If everybody cares enough and everybody shares enough, everybody will have enough.

No waste in your ice-box, cash-box, brain-box!

KEEP THE MORAL STANDARDS OF THE NATION HIGH

Don't weaken the home-front by wangling something for yourself on the side.

Dishonesty and indulgence in you saps the nation's fighting strength.

A decent world tomorrow depends on how you live today!

THE SECRET OF STEADINESS AND INNER STRENGTH IS ON EVERY PENNY:

"In God We Trust"

Telephone wires may be cut, radio stations off the air, but no bombardment can stop us from being directed by God.

To listen to God and obey wherever you are is your highest national service.

HANG THIS IN YOUR HOME, OFFICE, STORE AND FACTORY!

WOMEN'S FIELD ARMY OF THE AMERICAN SOCIETY FOR THE CONTROL OF CANCER

The State Assembly of this organization, with the theme "Health Defense is National Defense," was held at the Jung Hotel, January 17-18. The meeting was preceded by a dinner presided over by Dr. Edwin H. Lawson, and the evening meeting was addressed by physicians, in part. Lt. Col. S. C. Woldenberg, Chief of the Surgical Service of the Lagarde General Hospital, spoke on "Cancer Control—A Military Necessity in National Defense." Dr. George M. Leiby, head of the Division of Preventive Diseases of the State Department of Health, spoke on "Relationship of the Women's Field Army to State and National Health Departments." Dr. Edgar Burns, the newly installed president of the Orleans Parish Medical Society, spoke on "Cancer and Its Control."

The State Executive Committee of this energetic organization is composed of the following physicians: Drs. Edwin H. Lawson, Chairman; J. T. Nix and Aiton Ochsner, New Orleans; S. C. Barrow, Shreveport, J. T. Cappel, Alexandria, Lester J. Williams, Baton Rouge; L. O. Clark, Lafayette; Walter Moss, Lake Charles, and John G. Snelling, Monroe.

MEDICAL OPENING

There is an opening for a young medical man on the examination staff of the Louisiana Ordnance Plant in Shreveport, Louisiana. This will give any young man his draft exemption and at the same time he will have an opportunity to serve in a defense project with a very interesting type of industrial medicine. The salary will begin with about \$300 a month, depending on the individual and his adaptability. The work will be in the

nature of routine pre-employment examinations and the more detailed physical consideration involved in employment in the handling of explosives. In the event the applicant is involved in the draft, deferment can be requested upon employment.

Any physician interested in this opening is requested to communicate with Dr. Andrew S. Tomb, Silas Mason Co., Shreveport, La.

THE FOUNDATION PRIZE OF THE AMERICAN ASSOCIATION OF OBSTETRICIANS, GYNECOLOGISTS AND ABDOMINAL SURGEONS

This award, which amounts to \$150.00, is open to interns, residents, graduate students, and physicians, who are actively practicing or teaching obstetrics, gynecology, or abdominal surgery. The manuscript must be limited to 5,000 words. Details of the rules governing the award may be obtained through this office.

THE LOUISIANA MERIT SYSTEM

The Council of the Louisiana Merit System announces that competitive examinations will be held for positions in the State Department of Labor, State Department of Public Welfare, and State Board of Health. This second series of examinations is open to social workers and others who have always been in the same category. Details may be had from the office of the Council 631 Main Street, Baton Rouge.

NEWS ITEMS

Dr. T. A. Watters was elected vice-president of the Alumni Association of the Neurological Institute of New York for the coming year, at their annual meeting in New York City. Dr. Watters also attended the meeting of the Program Committee of the American Psychiatric Association and a conference of the National Committee for Mental Hygiene while in New York.

Dr. William D. Cutter, for the past eleven years secretary of the Council on Medical Education and Hospitals of the American Medical Association, died on January 22 after a brief illness in Johnson City, Tennessee.

The United States Pharmacopoeial Convention will meet at the Hotel Statler, Cleveland, Ohio, on Tuesday, April 7, 1942.

The annual meeting of the American Congress on Obstetrics and Gynecology will be held in St. Louis, April 6-10, 1942.

The sixth National Social Hygiene Day will be observed February 4, 1942.

The American Association of Industrial Physicians and Surgeons, and the American Industrial Hygiene Association will hold their joint Annual

Convention in Cincinnati from April 13 to 17, 1942. A program is in preparation in which important medical and hygienic problems associated with the present huge task of American industry will be presented and discussed in clinics, lectures, symposia, and scientific exhibits. The central purpose of the meeting will be to provide a five-day institute for the interchange and dissemination of information on new problems as well as for the consideration of up-to-date methods of dealing with those that are well known. The industrial physicians have taken responsibility for the program of the first two and one-half days and the hygienists for the remainder of the five days, but most of the subjects chosen for discussion will be of interest not only to physicians, but equally so to industrial engineers, and executives.

THE NEW ORLEANS GRADUATE MEDICAL ASSEMBLY

Our knowledge of medicine in times of peace must now be extended to include the medicine and surgery of war. The Assembly program has been planned to include the advances of today and the trends of tomorrow in both the medicine of peace and of war. The distinguished guest speakers will bring to those who attend many subjects of interest and practical importance. Following is a list of the speakers and their topics of discussion:

- Dr. Charles F. McCuskey, Anesthesiology.
1. The Selection of the Anesthetic Agent and Method.
 2. Regional Anesthesia.
 3. Anesthesia in Chest Surgery.

- Dr. Frank N. Wilson, Cardiology.
1. What the Electrocardiogram Has to Offer in the Diagnosis and Management of Cardiac Diseases.
 2. Observations on Paroxysmal Tachycardia.
 3. The Precordial Electrocardiogram.
 4. Curable Diseases of the Heart.

- Dr. Charles C. Dennie, Dermatology.
1. Diet in Dermatological Conditions.
 2. Symposium—Sulfonamide Therapy.
 3. Treatment of the Pregnant Syphilitic Woman.
 4. Congenital Syphilis of the Bones and Joints.

- Dr. Russell S. Boles, Gastroenterology.
1. The Relation of Alcohol to Cirrhosis of the Liver.
 2. Functional Disorders of the Gastrointestinal Tract.
 3. Observations on the Etiology of Peptic Ulcer.

- Dr. Edwin C. Hamblen, Gynecology.
1. The Use of Female Sex Hormones in Clinical Practice.
 2. Gonadotropic Therapy.
 3. The Sterile Couple: Diagnostic and Therapeutic Problems.

Dr. William B. Porter, Medicine.

1. The Diagnostic Significance of Changes in the Hands.
2. Complications of Staphylococcal Cutaneous Infections.
3. Symposium—Sulfonamide Therapy.
4. Acute Pericarditis.
5. The Nature of the Host Reactions to Parasites.

Dr. William H. Sebrell, Medicine.

1. Nutrition and National Defense.
2. The Clinical Importance of Vitamin B Complex Deficiencies.
3. The Diagnosis of Subclinical Deficiency Disease.

Dr. Raymond W. Waggoner, Neuropsychiatry.

1. The Diagnosis and Treatment of Psychoneurotics in General Practice.
2. Symposium—Sulfonamide Therapy.
3. The Convulsive Disorders or "Epilepsy."
4. The Diagnosis and Treatment of Mild Cerebral Arteriosclerosis.

Dr. Samuel A. Cosgrove, Obstetrics.

1. Extraperitoneal Cesarean Section, by the Dr. Waters' Supravescical Technic.
2. Indications and Conditions for Use of Forceps.
3. Commentaries on Some Selected Case Reports.
4. Remarks on Management of Heart Disease and Toxemia in Pregnancy.

Dr. Albert D. Ruedemann, Ophthalmology.

1. Headache and Head Pain of Ocular Origin.
2. Ocular Manifestations of Allergy.
3. Differential Diagnosis of Exophthalmos.

Dr. Frank D. Dickson, Orthopedic Surgery.

1. Surgical Treatment of Arthritis.
2. The Management of Compound Fractures with Especial Reference to the Part Played by the Sulfonamide Drugs.
3. The Sulfonamides in the Treatment of Chronic Osteomyelitis.

Dr. Thomas E. Carmody, Otolaryngology.

1. Sinus Disease in Children.
2. Relation of Oral Pathology to General Medicine.
3. Tumors of the Face and Mouth.

Dr. Harry P. Smith, Pathology.

1. Vitamin K and Hemorrhagic Disease of the Newborn.
2. Vitamin K in the Treatment of Adults.
3. Clinico-pathologic Conference.

Dr. Irvine McQuarrie, Pediatrics.

1. Causes and Management of Convulsive Disorders in Childhood.
2. Symposium—Sulfonamide Therapy.

3. The Problems of Edema in Childhood.

4. Diseases of the Adrenal Glands in Children.

Dr. Ross Golden, Radiology.

1. Diseases of the Small Intestine Demonstrable by Roentgen Examination.
2. The Miller-Abbott Tube in the Treatment of Ileus, with Emphasis on the Technic of Insertion.
3. Disturbances in Small Intestinal Physiology Associated with Certain Deficiency States.

Col. Norman T. Kirk, M. C., Surgery.

1. Plan for Evacuation and Treatment of War Casualties.
2. The Guillotine or Open Amputation.
3. The Medical Department Problems in the Present Emergency.

Dr. Frank H. Lahey, Surgery.

1. Some of the Common and Uncommon Thyroid Problems.
2. Clinico-pathologic Conference.
3. Lesions of the Terminal Ileum, Colon and Rectum.
4. The Place of Medicine in the Country Today.

Dr. Alexander Randall, Urology.

1. A Rational Analysis of Our Clinical Knowledge of Renal Calculus, with an Exposition of Clinical Handling.
2. Lantern Demonstration of the Origin and Growth of Renal Calculus.

The registration fee of \$10.00 includes four round-table luncheons, and all features of the meeting. The many educational and other advantages of New Orleans, the well-planned program, and the hospitality of our profession assure our guests a visit of pleasure and profit.

INFECTIOUS DISEASES IN LOUISIANA

The morbidity report of the Section of Epidemiology of the Louisiana State Board of Health shows that for the fiftieth week of the year which came to a close December 13, there was a really remarkable absence of reportable diseases, there being only four diseases reported in numbers greater than ten, namely: 193 cases of syphilis, 23 of pulmonary tuberculosis, 21 of gonorrhea, and 16 of pneumonia. In this week there were three cases of typhus fever, one each from Caldwell, Orleans and Richland parishes. Three cases of typhoid fever were also reported this week, no one parish having more than one case. For the week which terminated December 20 the diseases in numbers greater than ten were: 157 cases of syphilis, 45 of gonorrhea, 27 of pneumonia, 21 of pulmonary tuberculosis, 15 of chickenpox, 11 of measles, and 10 of diphtheria. Four cases of typhus fever were reported this week, scattered throughout the southern part of the state, and one case of poliomyelitis

was found in Ouachita. If the epidemiologic report of two weeks previous was remarkable, still more unusual was that of December 27. Excluding syphilis with 111 and gonorrhea with 21 cases, there was only one disease in which there were more than ten cases reported. In this instance, only 10 cases of pneumonia were reported as contrasted with the five-year average of 51; eight cases of pulmonary tuberculosis were listed in contrast to the five-year average of 21. Truly a remarkably healthy week. Of the rarer diseases, two cases of meningococcic meningitis were listed and two of typhus fever. Three cases of typhoid fever were found in DeSoto and two in Lafayette. For the first reported week of the year 1942, ending January 3, there were listed 96 cases of syphilis, 65 of lobar pneumonia, 22 of uncinariasis, 20 of pulmonary tuberculosis, 18 of gonorrhea, 15 of chicken-pox, and 13 of mumps. There were listed two cases of meningococcic meningitis, three of typhoid fever, and one of poliomyelitis.

The weekly morbidity report, beginning 1942, will be changed in form from those of the past few years. Hereafter the weekly report will be given, the total number of cases in the previous four weeks, and the total number of cases that occurred throughout the year starting with January first and adding each week the number of cases to the total which has been reported in every specific week.

HEALTH OF NEW ORLEANS

The Bureau of the Census, U. S. Department of Commerce, has reported that for the week ending December 13, there was a rather sharp increase in the number of deaths as contrasted with the previous week, 40 more people dying in the City of New Orleans this week than they did in the former week. These deaths were divided 91 white and 52 negro, with only eight of the deaths occurring in children under one year of age. For the week which terminated December 20, there was very little change, 139 deaths being recorded of which 86 were white and 53 negro. Thirteen of these deaths were in infants, nine negro and four white. There was somewhat of a drop for the last reportable week of the year. Of the 130 deaths in the city this week, 85 were in the white and 45 in the negro race. The most remarkable thing about this particular week was the fact that there were only two infant deaths, one white and one negro. For the first week of the new year, the increase of 34 deaths in the city was a result of 108 white people expiring and 56 negroes. Evidently the infant deaths of the previous week were saved up for this week because there were 15 babies succumbing to disease in the week ending January 3, nine of whom were colored children.

A TRIBUTE

To Members of the family of the late Dr. Robert William O'Donnell, Monroe, Louisiana:

To the New Orleans Medical and Surgical Journal:
To Members of the Louisiana State Medical Society
and Doctors Everywhere:

It is the wish of the members of the Ouachita Parish Medical Society to express our high appreciation and respect for the personal and professional qualities of our recently deceased fellow member, Dr. R. W. O'Donnell.

We also wish to express our profound sorrow and our sympathy to his family. "To live in the hearts of those we leave behind is not to die."

Signed: F. C. BENNETT, M. D., Chairman.

G. M. SNELLINGS, M. D.

C. P. GRAY, M. D.

ROBERT. W. FAULK, M. D.

Committee of Ouachita Parish
Medical Society.

FRANK J. CHALARON

(1869-1942)

The innumerable friends of Dr. Frank Joseph Chalaron were saddened by his sudden death on January 16.

Dr. Chalaron was one of the outstanding medical men in the City of New Orleans and the State of Louisiana. He rendered services to the State Society which extended over thirty years. During the greater part of this time he was the Chairman of the Budget and Finance Committee and watched with assiduous attention and kept guard over the finances of the State Medical Society, devoting much time to this duty. He was repeatedly a member of the House of Delegates, representing the Orleans Parish Medical Society. In this legislative body his advice was sought after as his suggestions always were constructive and serviceable.

Dr. Chalaron was a public-minded citizen interested in the welfare and well-being of the citizens of the city and state. For many years he acted as a consultant for the Red Cross.

Dr. Chalaron specialized in urology. He was the first man in the city to take up this specialty and to make it his own. His hospital connections were several but to the Mercy Hospital he gave the greater part of his time. He was head of the department of urology in this institution and was a past-president of the staff.

Dr. Chalaron will be hard to replace. Lovable, dignified, sincere, his death will leave a vacancy in organized medicine which will be hard to fill.

WOMAN'S AUXILIARY

Louisiana State Medical Society

President—Mrs. Aynaud Hebert, New Orleans.

President-elect—Mrs. Clarence B. Erickson, Shreveport.

First Vice-president—Mrs. H. O. Barker, Alexandria.

Second Vice-president—Mrs. Cecil O. Lorio, Baton Rouge.

Third Vice-president—Mrs. B. L. Cook, Minden.

Fourth Vice-president—Mrs. R. W. O'Donnell, Monroe.

Treasurer—Mrs. Daniel J. Murphy, New Orleans.

Recording Secretary—Mrs. Rhodes Spedale, Plaquemine.

Corresponding Secretary—Mrs. Charles R. Hume, New Orleans.

During the past month your president, Mrs. Aynaud Hébert, visited the auxiliaries of Baton Rouge, Shreveport, Natchitoches and Plaquemine parishes. She reports with great pride the outstanding work of each of these auxiliaries, and cannot say enough in praise of their fine work and the outstanding programs they have selected. Mrs. Hébert plans to visit each auxiliary individually before her term expires.

A special plea is given to each auxiliary to make some effort toward the Jane Todd Crawford Memorial. The proceeds of this fund are to be invested in Defense Bonds, thereby covering two important programs in one.

Dr. W. W. Bauer, Director of Health Education of the American Medical Association will tour the state between February 17 and March 6. This is a rare opportunity to hear one of the outstanding speakers of the association. Every auxiliary interested in having Dr. Bauer talk to their group should get in touch with the state public relations chairman, Mrs. J. O. Duhon, of Lafayette, who will arrange dates accordingly.

ORLEANS PARISH

The Woman's Auxiliary to the Orleans Parish Medical Society held its first meeting of the year 1942 with its newly inducted president, Mrs. Paul G. LaCroix, presiding.

Plans for an outstanding program for the year were approved. There was a very large membership in attendance. After the first session, a most interesting discussion on Belgium was given by Father Dessogne, of Loyola, who was formerly with the Belgium Intelligence Department.

The following officers and committee chairmen were introduced:

President, Mrs. Paul G. Lacroix, 3132 State St. Dr., WA 6272; President-elect, Mrs. C. L. Peacock, 8415 So. Claiborne Ave., WA 7040; Past-president, Mrs. James W. Warren, 470 Audubon Blvd., WA 3485; First Vice-president, Mrs. Gilbert Anderson, 5521 Atlanta St., UP 2884; Second Vice-president, Mrs. Wm. Kohlman, 1330 Eleonore St., UP 0221; Third Vice-president, Mrs. Jonas Rosenthal, 5355 St. Charles Ave., WA 5355; Fourth Vice-president, Mrs. Charles Odom, 7821 Belfast St., WA 3068; Recording Secretary, Mrs. Gordon McHardy, 25 Papworth Place, CE 2455; Treasurer, Mrs. Walde-mar Metz, 2437 Jefferson Ave., WA 3314; Corresponding Secretary, Mrs. Willard Wirth, 2523 Octavia St., WA 0456; Parliamentarian, Mrs. Lloyd Kuhn, 4317 S. Miro St., JA 0661; Historian, Mrs. W. A. Reed, 2720 Octavia St., WA 4236; Press and Publicity, Mrs. George J. Taquino, 18 Fontainebleau Dr. WA 3358.

CHAIRMEN OF COMMITTEES

Program, Mrs. Lucian Alexander, 4010 St. Charles Ave., CH 4212; Hostess, Mrs. Ansel M. Caine, 1640 Robert St., JA 0321; Membership, Mrs. Aynaud F. Hébert, 2013 Napoleon Ave., JA 3434; Registration, Mrs. Edgar Burns, 3227 Coliseum St., CH 5121; Notification, Mrs. C. L. Peacock, 8415 So. Claiborne Ave., WA 7040; Telephone, Mrs. Gilbert Anderson, 5521 Atlanta St., UP 2884; Courtesy, Mrs. Roy B. Harrison, 2327 Napoleon Ave., JA 0129; Motor Corps, Mrs. Philips Carter, 3122 La. Ave. Pkwy., CH 2464; Periodic Health, Mrs. William Kohlman, 1330 Eleonore St., UP 0221; Cancer, Mrs. L. S. Charbonnet, 2809 Audubon St., WA 2190; Red Cross, Mrs. John Dunn, 8410 Pontchartrain Blvd., GA. 4877; Tuberculosis, Mrs. Charles Odom, 7821 Belfast St., WA 3068; Clothes, Mrs. Donovan C. Browne, 4920 St. Charles Ave., UP 0069; Samples, Mrs. Jonas W. Rosenthal, 5355 St. Charles Ave., WA 5355; Public Relations, Mrs. J. W. Warren, 470 Audubon Blvd., WA 3486; Contact, Mrs. C. Grenes Cole, 4938 St. Charles Ave., UP 3867; Commemoration, Mrs. Jules Myron Davidson, 5133 St. Charles Ave., JA 8800; Bulletin, Mrs. Jerome Landry, 2336 Milan St., JA 7041; Community Chest, Mrs. H. Theodore Simon, 1300 Third St., CH 1300; Printing and Supplies, Mrs. Frederick Fenno, 1630 Napoleon Ave., JA 3202.

BOOK REVIEWS

Electrocardiography Including an Atlas of Electrocardiograms: By Louis N. Katz, A. B., M. D. Philadelphia, Lea & Febiger, 1941. Pp. 580; illus. charts. Price \$10.00.

Exercises in Electrocardiographic Interpretation: By Louis N. Katz, A. B., M. D. Philadelphia, Lea & Febiger, 1941. Pp. 222. Price \$5.00.

The first book noted above is divided into three

sections. Each section is followed by a rather extensive bibliography.

In section one the author discusses the theory of electrocardiography including descriptions of galvanometers and available types of electrocardiographic machines. He describes the various types of artefacts and their causes. He quotes *in toto* the recommendations of the joint committees of the American Heart Association and the Cardiac So-

ciety of Great Britain as to the standardization of precordial leads. He advises that all cardiologists follow this recommendation. He is, however, of the opinion that the lead from the cardiac apex is not as satisfactory as one determined by fixed markings on the chest. He and his co-workers take two chest leads, CF2 and CF4, these are labeled four and five respectively. He thinks that CF2 is the most important lead. Many cardiologists probably would not agree with this.

There are six pages devoted to the special anatomy of the heart and eight to the physiologic properties.

In discussing the place of the electrocardiogram in clinical practice, he says that it is of value to the clinician in determining when he is approaching the toxic limits of digitalis medication. In a recent study by Geiger, Blaney and Druckemiller they conclude, "that the electrocardiogram has no practical clinical value for the quantitative estimation of digitalis saturation." This has been the reviewer's feelings for a long time.

In section two he takes up the invariants, namely the P waves, the QRS complex, the ST segment and the T waves. He also describes the variants, the contour direction, duration ST segment, and the T waves. The normal U wave he considers in the present state of our knowledge to be of unknown clinical significance. He discusses changes seen in the electrocardiogram following the administration of drugs and those changes that occur during acute illness.

There are one hundred nine pages devoted to coronary disease, coronary insufficiency, and myocardial infarct. There are curves showing the changes that are seen in congenital heart disease, thyroid disease, hypertension, pericarditis and chronic valvular disease. There are numerous reproductions with legends, most of them are good.

Section three is devoted to systematic descriptions of the electrocardiograms in the arrhythmias. There are two hundred twenty pages devoted to the varieties of arrhythmias. This is the best section of the book. There are numerous reproductions of electrocardiograms with legends. There are a few curves and a few statements that might be questioned by some.

The book as a whole would be of more use in the hands of those who have had some training in electrocardiography and one can recommend it to that type of reader. There are better books for the beginner.

"Exercises in Electrocardiographic Interpretation" is a companion volume to this book. It contains two hundred and four pages with an appendix of fourteen, and is illustrated with one hundred twenty-eight engravings containing one hundred eighty-nine electrocardiograms.

The electrocardiograms are arranged on one page with the description, interpretation, clinical story and correlation on the opposite page. One can

usually expect some differences of opinion in the interpretations of electrocardiograms.

This volume as a whole can be recommended to any one interested in this subject.

J. M. BAMBER, M. D.

A Manual of the Treatment of Fractures: By John A. Caldwell, M. D. Springfield, Ill., Charles C. Thomas, 1941. Pp. 150. Price \$3.50.

This concise work on fractures covers the whole field of fracture work so clearly and so well, that it can be unqualifiedly recommended to any student as a basis for learning the subject, and to any intern or house officer as a guide to treatment. The best feature of the book is the fact that the author has clung to major principles throughout his discussions, and minimized the mechanics of the actual types of aftercare so often described. As a result the reader is not lost in a maze of technical description, but is given an anatomic picture of the problem presented by any given fracture, and the reasonable solution based on the anatomy of the part.

The bibliography at the end of each chapter is excellent and gives adequate opportunity for the individual to follow up any given problem in more major works. As a ready reference for any doctor who feels the need of advice on the treatment of fractures in general, this work can be considered one of the best of its kind published to date.

FRANK J. COX, M. D.

Textbook of General Surgery: By Warren H. Cole, M. D., F. A. C. S., and Robert Elman, M. D., 3d ed. New York, D. Appleton-Century Co., Inc., 1941. Pp. 1067. Price \$8.00.

The latest edition of this book, which the authors first published in 1936, has been completely reset in an attempt to include the many advances in surgery which have been made even since the revised edition published in 1939. Particular attention is devoted to open wounds, amputations, burns, and the treatment of compound fractures, because of the increased importance which these conditions have assumed in the present war. The use of silk in the repair of wounds is emphasized, and the employment of sulfonamide drugs in surgical practice is discussed in relation to the many applications of this form of therapy. As in previous editions, details of operative procedures are, in most instances, not given. The newer concepts and data concerning transfusion of blood and blood plasma, and the most recent developments in the treatment of patients with jaundice are included. The increasing usefulness of endocrine and vitamin preparations in the management of surgical cases is also emphasized. Numerous illustrations have been eliminated or replaced by new ones, and by condensing the chapters on infection, and by deletion of relatively unimportant or obsolete material contained in the earlier editions, the additions to the book have been

made without a considerable increase in the size of the text.

AMBROSE H. STORCK, M. D.

Textbook of Pathology: Edited by E. T. Bell, M. D. 4th ed. enl. & rev. Philadelphia, Lea & Febiger, 1941. Pp. 931. Price \$9.50.

This text represents one of the later additions to the field of pathology. Even at that this work has gone through four editions, no doubt as a result of its popularity as a teaching and reference text. The present text presents certain innovations which fall in line with what seems to be the modern requirements of a textbook of pathology, that is, a much closer correlation with the clinical side of medicine. It would seem that this feature may in some instances be carried to extremes. It is felt that a discussion of therapy, in some instances, is certainly out of place in a textbook of pathology. It is pleasing to note that the author has included all important and recent additions to the specialty of pathology without including those which are too theoretical or which might lay the work open to criticism.

The text is clearly written and well illustrated by a fairly ample number of photographs of excellent quality. Another commendable feature is an excellent bibliography, consisting of the most recent pertinent references, following each chapter.

The chapters on diseases of the urinary system and heart are written by Drs. Bell and Clawson respectively and are well discussed due to the interest and ability of these authors in these respective fields. The work in its present form should serve admirably as a teaching and reference text.

H. J. SCHATTEBERG, M. D.

Shock Treatment in Psychiatry: By Lucie Jessner, M. D., Ph.D., and V. Gerard Ryan, M. D. New York, Grune & Stratton, Inc., 1941. Pp. 149. Price \$3.50.

Even though, as Harry Solomon states in the introduction, shock therapy's form is "none-too-pretty" and any method of producing shock is distasteful, this type of treatment is here and is likely to remain until better methods are found. And he effectively philosophizes thus: "One cannot view these therapeutic approaches without being conscious that a new era has opened in psychiatry. If a few convulsions completely change the emotional tone of an individual, what is the mechanism involved? Indeed we are compelled to more intensive study of the cause of emotional responses. If paranoid delusions are wafted away during the course of insulin comas, one is led to speculation concerning the brain function that leads to their formation. New methods of study must be evolved. The psychiatrist, the neurologist, the neuropathologist and the physiologist must join the attempt to understand brain and mind function."

The book is designed as a brief, practical review of a decidedly revolutionary psychiatric procedure, though be it empirical with no rational explanation for the beneficial results so often observed. The authors set forth the details of insulin therapy, metrazol convulsive treatment, and electric convulsive therapy based on their own experiences and data obtained from a review of some 353 contributions as indicated in the bibliography. They deplore the fact that there has been little uniformity in the application of these methods or in the definition and delimitation of the diagnosis.

Ross' valuable suggestions as to the extent of recovery are outlined, and the defined concept of insight is excellent. There are important remarks concerning the use of shock therapy in the affective, depressive and involutional psychoses, but curiously, none specifically relating to its use in the psychoses of old age along the lines reported by Dr. W. Wilse Robinson.

All in all, this book of Jessner and Ryan is a vital, timely, necessary book, which presents an appraisal of the status of shock therapy, and it should be utilized by neuropsychiatrists everywhere.

C. P. MAY, M. D.

The Essentials of Occupational Diseases: By Jewett V. Reed, B.S., M.D., F.A.C.S., and A.K. Harcourt, B.S., M.D. Springfield, Charles C. Thomas, 1941. Pp. 225, 1 Chart. Price \$4.50.

This brief text presents various occupational diseases in codified form; occurrence, symptoms, diagnosis and treatment. The briefness of the book is characterized by its limitation of diseases due to physical agents to seventeen pages with omission of such important traumatic responses as herniation and the so-called "industrial back."

RALPH H. HEEREN, M. D.

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HEALTH FOR VICTORY*

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JACKSON, MISS.

The opportunity to speak before a group of earnest, efficient and enthusiastic workers such as comprise the Louisiana Public Health Association is indeed a happy occasion for me. Mississippi has no closer neighbor than Louisiana and consequently we have much common ground for public health relations. I know you do not care to listen to a sales talk on public health values, for people who have been in the profession but a short time and have followed its principles seriously and devotedly do not have to be sold on their worth. What we might consider is how to put to the most productive use the gains which have been made in recent years.

Certainly it is true that no group can make a greater contribution to national defense than public health workers. And this is truer today than ever before for there has developed increasingly better organization, more adequate knowledge and skill, and better trained personnel to execute this knowledge.

No nation can profess strength whose people are physically unfit for efficient service. Consequently any intelligent defense effort must give first consideration to the health status of both its civilian and military populations. The present conflict is no ordinary war. The total capacity to produce and total efficiency are the primary issues involved in this mighty military

effort, and it goes without saying that the forces possessing these qualities in greatest abundance will ultimately triumph. This means that the health and efficiency of the industrial worker and of all civilians whose responsibility it is to produce modern military equipment are equally as important as the health and efficiency of those who carry the rifles, pilot the planes, or drive the tanks. In the light of all this, public health assumes a role of importance second to none in developing military strength. And military strength, we must not forget, depends upon civilian strength and morale. If ever we needed to put to work fully those fundamentals of public health which we know will promote and conserve the health of our 131,000,000 citizens, we need to do so now.

Total defense presents tremendous problems which we can hope to solve only through intelligent cooperation, careful planning, and a willingness to sacrifice. The whole job is one of teamwork and means sharing the responsibility for the common good.

We know from long experience that mobilization of troops increases the incidence of communicable diseases. Therefore, precautionary measures are being taken and programs are being developed which will reduce preventable illnesses and disabilities. Experiences gained during the previous World War will help us to cope with the present emergency more efficiently and to avoid many mistakes. In fact, ironic as it may seem, tremendous impetus was given both medical and public health advances during the first war which tend to offset or compensate in some measure for the great loss of life and destruction of property. This seems to bear out a statement

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†From the Mississippi State Board of Health.

once made by the illustrious Dr. Charles Mayo, that "When the institutions, the freedom, the wealth, the health and the very lives of a people are jeopardized by destructive forces from without, the primal instinct of self preservation becomes a spur to endeavor and accomplishment"—and war, tragic as it is, seems to leave some good in its wake.

At any rate, we are reminded that the 1914-1918 war introduced a new era in preventive medicine, public health and sanitation and that many of the most effective public health procedures of today evolved from this period. For instance, trench fever, which had handicapped the British Expeditionary Force, was brought under control as a result of advanced sanitary knowledge which makes it possible to inhibit its development and prevent its spread. The efficacy of immunization procedures such as typhoid vaccine and tetanus antitoxin to prevent typhoid fever and tetanus was definitely established. Botulism was discovered to be caused not only by contaminated meats but by improperly canned vegetables which had become infected. There was acquired increased knowledge regarding the dangers of overcrowding and the importance of isolating patients and segregating contacts exposed to meningitis, influenza, and other infectious diseases.

Among the outstanding contributions to preventive medicine was the Army's candid system of venereal disease control, which helped to inhibit the spread of these disabling afflictions among the troops. Today, civilian populations are approaching the problem in somewhat the same manner after a Rip Van Winkle period of indifference. People, at long last, have awakened to the fact that syphilis is a disease problem, not a disgrace, and that by patient treatment it may be cured. Enlightened public opinion now encourages educational and other practical control measures.

No small development arising out of the 1914-1918 war was the new interest in child welfare and in periodic physical examinations. This was doubtless due to the realization that many of the physical defects

disclosed by military examining boards might have been prevented by intelligent care and training during the early years of life. These and many other advances were realized, making it possible for both medicine and public health to achieve new heights in administering to the health needs of the country in the years which followed.

Notwithstanding all these accomplishments, the rate of present-day rejections of young men for military service remains high. Diagnostic technics are of course more accurate than during the previous war, enabling more physical defects to be detected. Nevertheless the whole deficiency points to the fact that the knowledge which has been gained for promoting health and preventing disease has not been wholly applied. Many people have been astonished at the amount of disability which the present emergency has disclosed. Some even go so far as to question the total efficiency of public health work. They fail to recall how often public health has pointed the way to correction and prevention of defects and how often large numbers ignored the measures which they were told were necessary for achieving optimal physical fitness. Ignorance, indifference, procrastination, and economic reasons may be regarded as the major obstacles which prevented a larger number from benefiting from the newer health knowledge of this period. It must be recognized that while public health has achieved amazing results in controlling communicable diseases and in lengthening the span of life, it unfortunately cannot protect an individual against many preventable conditions unless he gives full cooperation. In venereal disease control program there is a good example of this, and of course there are many others. In other words, "We can make certain that the milk delivered to an individual is grade A, but we cannot make certain that he who drinks it has a grade A mouth." A better educated public, better trained health personnel, and more adequate financial support of the public health program will eventually make for the solution of such problems.

In the meantime, we cannot forget that we are in the middle of an emergency and

cannot wait for the more ideal conditions for promoting national health and strength. As I have already pointed out, there is a job for everyone and we cannot hope for total success in our efforts if there are many laggards.

Public health workers are more than glad to do their share in meeting the responsibilities of these times, and the medical and dental professions have demonstrated a like spirit. However, it cannot be emphasized too strongly that service on the home front is equally as important as service in the Army. National defense, of course, should have priority over everything else, but it behooves each of us to remember that a major phase of this defense is in holding the health gains already made. Those of us who have witnessed the amazing growth of public health services in recent years and understand the need for perpetuating and extending these services, are deeply concerned at this time over the steady depletion of trained personnel in the civilian public health forces. On many of these individuals there have been spent substantial sums of money to train and equip them for the efficient performance of their respective duties. We have expected that we would have to make some sacrifices to meet military needs, but it seems necessary to insist that there be a more equal distribution of all medical, dental, nursing and public health facilities or else the consequences may be regretful. At a special conference of the State and Territorial Health Officers in Washington last September, it was recommended that in plans for national defense the work of the official public health agencies be recognized as an essential part of the national defense program.

Until these problems can be solved, it remains to be seen just what can be accomplished by the present limited personnel. To the many public health needs which existed before the emergency have been added a multitude of new needs. The large concentration of troops in camps and cantonments and the tremendous influx of new population attracted by industrial expansion have created problems of great magni-

tude in communicable disease control, sanitation, housing, medical and hospital facilities, education, recreation, and in many other related conditions essential to social development and public welfare. Legislation is pending in Congress which would help to meet some of these needs, but public health cannot hold back for final action. Our contribution is needed now, and since we cannot hope to cover all the ground the logical procedure is to begin with the most urgent needs and work on down the list, achieving all we can. Here are the things to which we should give first attention:

1. *Communicable disease control*, with especial reference to venereal diseases.

2. *Sanitation*. The very elemental phases of health work need more emphasis, particularly ordinary sanitation, safe water and milk supplies, protection of the food supply, sanitary methods of excreta disposal, and drainage.

3. *Industrial Hygiene*. With production of tools and equipment a primary essential to defense, the health of the worker assumes a place of first importance. It must not be neglected.

4. *Rehabilitation*. So much could be said on this subject. Based upon the large number of rejectees there have been—and it is felt that they represent a good cross-section of the total population—it goes without saying that some action must be begun immediately to boost the physical status of these rejectees where possible.

The lesson that public health gains from the startling discovery that so many are incapacitated for active military service is that mere absence of disease does not imply that one is enjoying maximum physical efficiency and well-being. Consequently, the future will likely see greater emphasis than ever before on promotion and conservation of health as well as prevention of disease. It is time to begin applying on a universal scale the excellent store of knowledge that has been accumulating for some years for practicing personal preventive medicine and hygiene. That knowledge,

properly recruited, will strengthen immeasurably the nation's defenses. It remains for public health to asume the leadership in putting it to work, instilling in people a greater sense of personal responsibility for health.

In spite of the chaos of this period there are wonderful opportunities for those with public health training and experience to make lasting contributions for the betterment of mankind. Think how much it would mean if we could liberate him from the primitive and elementary bonds of poverty, ignorance and disease. Public health has had a dramatic history but I do not believe it ever had more to offer than it does today. It is for you and me and other co-workers to put our shoulders to the wheel and work unceasingly until we shall have achieved the goals we know are within reach. Such is democracy!

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CORONARY OCCLUSION IN PRIVATE PRACTICE*

MELVILLE W. HUNTER, M. D.
MONROE

The purpose of this paper is to review a series of consecutive cases of coronary occlusion seen in private practice in a city of 30,000 inhabitants and its rural and semi-rural surrounding territory, and to discuss them in reference to occupation, age, longevity, time of onset, and prognosis.

OCCUPATION

In table 1, the occurrence of coronary occlusion as to the occupations of its victims is considered. It is noted that 50 per cent of the cases occurred in office workers and white collar executives, 30 per cent among those doing manual work, and 19 per cent among housewives. Formerly, it was taught that the disease

was almost limited to the office worker. Today with better means of examination and better educated physicians, it is diagnosable in all walks of life. Thus every physician, regardless of his location, or type of practice, will encounter the disease. The table is self-explanatory.

TABLE 1
CORONARY OCCLUSION AS TO OCCUPATIONS

	Cases
Physicians	9
Attorneys	4
Bank clerks	4
Clerical	14
Planters	8
Salesmen	4
Merchants	3
Executives	4
	50
Civil engineers	3
Aviator	1
Mill workers	11
Electricians	3
Painter	1
Blacksmiths	2
Farm laborers	7
Carpenter	1
Ice plant	1
Rural mail	1
	31
Housewives	19
White collar	50
Manual labor	31
Housewives	19
Total	100

AGE OF ONSET

In reviewing the occurrence of onset of coronary occlusion according to age, it is noted that five cases or 5 per cent occur in the lower age group, 30 to 35 years, and that they are equally divided between those doing indoor and outdoor occupations. It is also interesting to observe that 33 or 37 per cent occur under the age of 50 and again it is noted 16 cases occur in indoor occupations and 17 cases in housewives and outdoor workers.

*Read before the sixty-second annual meeting of the Louisiana State Medical Society, Shreveport, April 22, 1941.

TABLE 2

CORONARY OCCLUSION ONSET ACCORDING TO AGE	
Ages	No. of cases
30-35	5
35-40	3
40-45	11
45-50	13
50-55	15
55-60	20
60-65	17
65-70	7
70	9
	100

In reviewing the cases as to onset according to months, it is noted that in the 86 cases recorded, the occurrence predominated in the colder months, that is, 50 cases, or 58 per cent, occurring in the four months of January, February, November and December. Thus cold weather undoubtedly influences the onset of the occlusion. Whether it is due to the individual's increased activity or increased blood pressure in cold weather is a matter for speculation.

It is also seen that in the 59 deaths recorded by months that 34, or 49 per cent, occurred in the four colder months, January, February, November, and December. Thus again cold weather has a definite bearing upon the mortality rate.

TABLE 3
CASES AS TO MONTHS

Onset	Rate	Deaths
January	16	10
February	9	7
March	4	2
April	2	5
May	6	3
June	7	4
July	4	1
August	4	4
September	5	3
October	4	3
November	8	3
December	17	14
	86	59

In table 4, the time of onset of 55 attacks is recorded and it is noted that no time of the day predominates:

TABLE 4
TIME OF ONSET 55 CASES CORONARY OCCLUSION

Time of day	Attacks	Per cent
6 a. m. to 12 noon.....	11	20
12 noon to 6 p. m.....	19	34.1
	—	—
Total 6 a. m. to 6 p. m.	30	54.1

6 p. m. to midnight.....	11	20
Midnight to 6 a. m.....	14	25
	—	—
Total 6 p. m. to 6 a. m.	25	45.9

TABLE 5
ACTIVITY AT TIME OF ONSET OF SYMPTOMS

Activity	No. of cases	Per cent
Asleep in bed	19	25.7
At home rest.....	21	28.5
Walking	8	10.9
Driving car	3	4.0
At work	8	10.9
Excitement or exertion.....	4	5.4
Gradual onset unknown.....	11	14.9
No records	26	

It is interesting that the onset in over 50 per cent of the cases occurred when the heart was at rest and that in only four cases, or 5.4 per cent, was excitement or exertion considered as an exciting cause or precipitating factor.

I have often wondered, in some of these cases occurring in sleep, if there may not have been a small occlusion when active and that the thrombus was slowly progressive and during the rest or sleep extended far enough to occlude a larger vessel and cause noticeable symptoms and the onset attributed as occurring at rest.

TABLE 6
ONSET CORONARY OCCLUSION

Predominating symptoms	No. of cases	Per cent
Cardiac pain	58	66
Dyspnea	15	17
Digestive (gastric)	11	12.5
Gradual	3	6
Not charted	13	

The above table gives the predominating symptoms of onset, revealing that one-third of the patients have as a predominating symptom, one that is not cardiac pain. This must be borne in mind in the differential diagnosis of abdominal discomforts and of dyspnea. It is not the purpose of this paper to deal with the diagnostic criteria but to review the predominating symptoms.

Having survived the acute attack, the patient enters into a state that may be referred to as chronic coronary occlusion. We ask ourselves, and are asked, what will be the outcome of the case and how will it terminate? That is, will the patient have

another attack or suffer chronic cardiac failure.

It is noted that in 36 deaths in patients who survived the initial attack that 14 suffered a sudden death in a recurrent attack, and that 20 suffered chronic cardiac failure, five taking one month to die after the onset of decompensation, and 15 patients suffering three to six months of decompensation, before death.

TABLE 7
DURATION 36 CASES SURVIVING INITIAL ATTACKS
OF CORONARY OCCLUSION

	Duration	No. of cases
Cardiac failure.....	1 month	5
Cardiac failure.....	3-6 mo.	15
Sudden or recurrent attack		14
Suicide		1
Carcinoma of uterus.....		1

THERAPEUTIC REGIMEN

In the series mentioned the following therapeutic routine was followed:
Acute attacks:

- (1) Morphine in large dose for relief of pain, or rest.
- (2) Glucose intravenously if systolic blood pressure below 100 mm. Hg. or if pulse pressure 10 mm. or less.
- (3) Rest in bed from four to 12 weeks.
- (4) Digitalis was not used except in a few acutely decompensated cases, the mortality being high.
- (5) Theophyllin or similar product orally or intravenously. I believe these are definitely beneficial.
- (6) Oxygen by nasal catheter was used in 15 patients and I believe in 10 instances was life saving.
- (7) Coramine for dyspnea; this was given in 5 c.c. doses orally every four hours. In a few patients, this had to be discontinued because of nausea.

- (8) General dietary and routine care.
- With the above there were 25 deaths or a 25 per cent mortality immediately or within the first month.

LIFE EXPECTANCY

As for the life expectancy, it is noted that 25 patients died suddenly or within the first month and that 18 lived five or more years. In the series, 12 patients are still living past five years and four past 10 years. It is probable that many of these will live a normal expectancy.

CORONARY OCCLUSION LONGEVITY

	One month or less	½	1	2	3	5	7
39 living		3	8	8	8	8	4
61 deaths	25	8	11	8	3	4	2
Total surviving		75	64	45	29	18	6

RETURN TO WORK

In reviewing the composite chart, it is noted that of the white collar positions, seven returned to limited work, 11 returned to full time gainful occupations. In those doing manual labor, 10 returned to a position of less work and two returned to hard labor.

In this series, there are two patients who have apparently made a complete recovery from clinical, x-ray and electrocardiographic standpoint; one, a bank clerk, the other an attorney; both have lived over five years and should have a normal life expectancy.

I would like to bring to your attention one thing that has given considerable trouble; that is the use of morphine. It should be used freely during the acute attack, but the patient should be weaned from the morphine as soon as possible to prevent addiction, developing because the local physician has decided that the patients did not live long and were entitled to relief. Then to the surprise of the physician the patients lived over five years as chronic addicts, and it is extremely difficult to treat the addict who has a cardiac condition.

COMPOSITE TABLE

COMPOSITE TABLE																				Re- turn to occu- pation
Deaths										Living										
Occupation (males)	No.	1 Wk.	1 Mo.	6 Mo.	1 Yr.	2 Yr.	3 Yr.	5 Yr.	7 Yr.	10 Yr.	Total	Less 1 Yr.	1 Yr.	2 Yr.	3 Yr.	5 Yr.	8 Yr.	Total	Part Time	Full
Physician	9	...	1	1	...	2	1	1	1	..	7	..	..	..	..	2	..	2	1	1
Attorney	4	1	2	..	...	..	..	..	..	..	3	..	..	..	..	1	..	1	..	1
Bank clerk	4	1	..	..	...	1	..	..	..	..	2	..	..	..	1	..	1	2	1	2
Clerical	14	1	1	..	2	1	..	..	..	..	5	2	2	2	1	1	1	9	3	2
Planter	8	2	1	..	...	1	..	..	..	..	4	..	1	1	1	1	..	4	..	1
Salesman	4	...	1	..	...	1	1	..	..	..	3	1	..	..	..	..	..	1	..	3
Merchant	3	...	..	..	1	1	..	..	..	..	2	..	..	..	..	2	..	2	1	1
Executives	4	1	..	..	...	..	..	..	..	1	2	..	..	..	..	..	1	1	..	1
Total	50	6	6	1	3	7	2	1	1	1	28	3	3	3	3	7	3	22		
Civil engineer	3	...	..	1	...	..	..	1	..	..	2	..	..	..	1	..	..	1	1	..
Aviator	1	...	..	..	...	..	..	..	..	..	0	..	..	..	..	1	..	1	1	..
Mill worker	11	3	..	2	3	1	..	..	..	..	9	..	1	1	..	..	..	2	1	..
Electrician	3	...	..	..	...	..	..	..	..	..	0	..	2	1	..	..	..	3	2	1
Painter	1	...	..	..	...	..	..	..	..	..	0	..	1	..	..	..	..	1	1	..
Blacksmith	2	1	..	..	...	..	..	..	..	..	1	..	..	1	..	..	..	1	1	..
Farm laborer	7	3	..	2	1	..	..	1	..	..	7	..	1	..	..	..	..	1	3	1
Carpenter	1	...	..	..	...	..	..	..	..	..	0	..	..	..	..	..	..	0	..	..
Ice plant	1	...	..	..	...	..	..	1	..	..	1	..	..	..	..	..	..	0	..	..
Rural mail	1	1	..	..	...	..	..	..	..	..	1	..	..	..	..	..	..	0	..	..
Total	31	8	..	5	4	1	..	3	..	..	21	..	5	3	1	1	..	10	..	..
Housewife	19	2	3	2	4	..	1	..	..	..	12	..	..	2	4	..	1	7	..	..
Grand total	100	16	9	8	11	8	3	4	1	1	61	3	8	8	8	8	4	39		

DISCUSSION

Dr. Ernest Young (Arcadia): When these people get over the attacks, they want to know when they can go back to work. Is there any way we can tell when people can go back to work?

Dr. M. W. Hunter (In closing): In answer to Dr. Young's question, time did not permit me to go into minute details, but from the composite chart it is noted that many, that is, that many in the white collared positions return to work—eleven to full time and seven to limited work. In those doing manual labor, ten return to limited work and two to full time labor. Two patients were seen who, from the clinical and electrocardiographic standpoint, made a complete recovery, one a bank clerk, the other a laborer. Both are still living and have lived six years.

The question of when should they go back to work depends upon how much exercise they are taking about the house. Quite frequently, they are doing more about the house when supposed to be resting than they would be back in the office.

TACHYCARDIAS
DIAGNOSIS AND TREATMENT*

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A heart rate of one hundred or more beats per minute in adults is the basis for the diagnosis of tachycardia. There are grades as slight, moderate and severe tachycardia. The origin may be in the sino-atrial node, in an ectopic or circus mechanism located in the atria, in the junctional tissues or in a ventricular focus. The rhythm of the usually designated tachycardias is perfectly regular but may seem to be irregular in occasional instances of short paroxysms

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interspersed between normal beats. The tachycardia of atrial flutter must be differentiated from sino-atrial tachycardia and from some slower ectopic tachycardias by indisputable electrocardiographic records.

The clinical diagnosis may be made at times on the basis of surrounding circumstances, general physical findings, body temperature, metabolism rate, status of the circulatory equilibrium, the blood pressure, the heart rate as determined by full minute counts at intervals, and by the effect of carotid sinus pressure for reflex vagus nerve stimulation. The final diagnosis often, however, rests with the electrocardiographic study.

SINUS TACHYCARDIA

Sino-atrial tachycardia generally is the result of depression of vagal tone on the sino-atrial node usually in combination with sympathetic stimulation, rarely either one alone. In rare instances tachycardia is a purely psychogenic affair. Occasionally it is a manifestation of hyperthyroidism or severe myocardial insufficiency with backward or forward failure. Most often, however, tachycardia is a part of the increased metabolism of physical exertion or fever incident to an infectious disease.

There is an acceleration normally of eight to ten beats for every degree of fever. Diphtheria and poliomyelitis may produce disproportionate tachycardia as a result of toxic vagus paralysis. Vagus inhibiting drugs, atropine and adrenalin, administered in full dosage may produce a considerable tachycardia. Decreased return of venous blood to the heart as in shock or hemorrhage and in neurocirculatory asthenia results in tachycardia. The presence of such conditions should be looked for. A history of gradual rise in the heart rate is a most significant clinical diagnostic fact.

The heart rate with sino-atrial tachycardia rarely rises above 160, very rarely to 180 except in moribund patients. The electrocardiogram is usually easily recognizable with characteristically clear-cut P waves followed in 0.12 to 0.20 seconds by

normal QRS and T waves and a very short T-P interval. The rate and rhythm are regular but usually may be slowed slightly, a matter of five to ten beats, by indirect carotid sinus or ocular pressure vagus stimulation.

Pilocarpin in 1/8 grain dose subcutaneously, acetyl-beta-methylcholine in a 50 mgm. dose subcutaneously and prostigmin in 1 mg. (2 c.c.-1/2000) intravenously may have similar vagotonic effects and sometimes slow the heart rate. Digitalis or quinidine sulfate by oral administration usually have no significant immediate effect upon the rate in sino-atrial tachycardia, except indirectly by improving the circulation and slowing the heart. Digitalis administered intravenously may slow the heart some within a short time after administration. Any conspicuous slowing, if studied electrocardiographically, will probably show some grade of digitalis AV block.

TREATMENT

Treatment in sino-atrial tachycardia should be directed toward the primary condition and when that is relieved the heart rate usually comes down. In cases in extremis, but without hyperthyroidism, heroic treatment as digitalization by intravenous injection to the point of producing heart block or atrial fibrillation, which may be then controlled by maintenance of digitalization, may be acceptable therapy. Prostigmin methyl sulfate, 1 to 2 c. c. of 1/2000 solution has been recently recommended as a treatment of sino-atrial tachycardia in such states as psychoneurosis or hyperthyroidism. Prostigmin is supposed to act by destroying the cholin esterase at the vagus nerve ends. Arthur Ruskin made studies for us of the effects of prostigmin in two cases of simple tachycardia. One patient with an anxiety state had a decrease in heart rate from 106 to 90. In the second case, an alcoholic, the heart rate dropped from 108 to 100. The effect occurred within ten minutes and five minutes after the second 1 c. c. dose. In the anxiety state some effect persisted but in the alcoholic it disappeared within half an hour.

PAROXYSMAL TACHYCARDIAS

Extremely rapid heart action that comes on suddenly, remains perfectly regular then stops abruptly either spontaneously or as a result of carotid sinus pressure or drug therapy, is designated as paroxysmal tachycardia. This may be of atrial or junctional or ventricular origin.

The mechanisms of the paroxysms may be considered to be the same as of premature or extrasystoles, namely: (1) an ectopic pacemaker, which lies dormant for a while, then is set off and supersedes the normal pacemaker for a varying length of time; (2) a circus mechanism into and out of the SA node or the AV node or an island of heart muscle in the atrial or junctional tissues or the ventricle may supersede the normal pacemaker; or (3) a parasystole with a region of local unidirectional block with exit block aligned in the reverse direction to the protection block. When the exit block is dissipated the ectopic pacemaker may gain control. Several parasystolic pacemakers may operate simultaneously and be used as explanation in an occasional case of paroxysmal tachycardia.

Electrocardiograms of supraventricular tachycardia due to usurpation of the function or supersession of the normal pacemaker are rather characteristic depending upon the position of the focus or circus. In all types of paroxysmal tachycardia, the P waves are often obscure. In atrial tachycardia frequently P waves are more clear cut and are essentially normal but may be definitely abnormal, often inverted and combined with the T waves. The QRS complexes are usually of normal form and duration. In a damaged heart, however, the high heart rate may produce ventricular fatigue and broadening of the QRS complexes or alternation of the same. The R-R intervals in a given electrocardiogram of an atrial paroxysm show no measurable variations. However, careful rate determinations after hourly intervals may show slowing as the paroxysm proceeds or under carotid sinus pressure which may within one beat suppress the abnormal pacemaker and turn the mechanism back to normal.

In the electrocardiograms of paroxysmal junctional tachycardia, P_2 and P_3 when clearly inscribed are inverted. Digitalis poisoning may produce this type of disorder. The junctional type is usually more persistent than other types of paroxysmal tachycardia. Both of the supraventricular types appear usually in nervous patients who present no reliable signs of heart disease but they may also arise and add complications to otherwise damaged hearts.

The electrocardiograms of ventricular tachycardia characteristically show wide diphasic QRS complexes which usually vary some in form but may be quite similar and simulate the form of single ventricular premature beats. R-R intervals often vary some after runs of perfectly regularly spaced complexes but there may be none of these interspersed intervals. The P-P interval may be longer than the R-R interval and if regular P waves will be superimposed upon the QRS at varying points. If P waves are so placed as to indicate an independent slower atrial rhythm the diagnosis is substantiated. Occasionally there is produced retrograde atrial stimulation with negative P waves coming after every second, third or fourth ventricular complex. It must be remembered that in an occasional case of supraventricular tachycardia, fatigue of one of the bundles will result in broad QRS complexes. Ventricular paroxysmal tachycardia usually develops in the seriously damaged heart muscle of myocardial infarction following coronary thrombosis. However, in rare instances paroxysms of ventricular tachycardia may appear in a patient whose heart seems to be otherwise perfectly normal.

DIFFERENTIATION

The clinical recognition of these disorders is not perfect. Paroxysms coming in younger individuals of a nervous makeup, without or with heart disease and lasting only for a few minutes up to a few hours and remaining perfectly regular in minute to minute counts at short intervals, are likely to be paroxysmal atrial tachycardia. Paroxysmal tachycardias coming on after digitalization are usually junctional and oc-

casionally ventricular in type. The junctional and ventricular types of paroxysmal tachycardia are often more persistent and are of definitely more serious moment. The ventricular type is most frequently associated with myocardial infarction following coronary thrombosis. The ventricular paroxysmal tachycardia frequently shows variations of five to six beats in minute to minute counts at short intervals. The electrocardiographic study, however, is necessary for the absolute diagnosis of the type of the paroxysmal tachycardia. The minute rates of the paroxysmal tachycardia of atrial or junctional origin are rarely below 160 and rarely above 240. The ventricular tachycardias are usually somewhat slower, rarely below 140 and rarely above 200.

TREATMENT

The methods of treatment of paroxysmal tachycardia are numerous and vary some with the type of paroxysm and with the accompanying symptoms. In atrial paroxysmal tachycardia the mechanical pressing of the carotid sinus, thus evoking the vasovagal reflex, should always be tried first. This was successful in one-third of our cases. In the atrial type the post-paroxysmal bradycardia must be anticipated, otherwise it might momentarily be very disturbing. Other forms of intense vagal stimulation or decreased sympathetic stimulation have been successful. The oculocardiac reflex, the Valsalva or Mueller test reflexes, the swallowing reflex and the vomiting reflex have been used to stop paroxysms. Emesis may be most safely induced by the use of syrup of ipecac, by mouth in 5 to 10 c. c. doses to be repeated in half an hour if ineffective. Nausea and vomiting must appear in 15 to 45 minutes for intensive vagus action to be induced.

The vagus nerve end organs may be sensitized by the addition of more choline or the prevention of the destruction of that which is present. Acetyl-beta-methyl choline (mecholyl), in doses of 0.5 to 1.5 grams ($7\frac{1}{2}$ to $22\frac{1}{2}$ grains) by mouth, has been used with some success especially where abdominal distention seems to precipitate paroxysms. This is rather expensive and

the subcutaneous injection of 30 to 45 mgm., ($\frac{1}{2}$ to $\frac{3}{4}$ grain) is usually effective, particularly when followed by carotid sinus pressure. Prostigmin methyl sulphate in 1 to 2 c. c. of 1:2000 solution (0.5 to 1.0 mgm.) inhibits the action of cholin esterase and alone often stops the paroxysm and frequently produces A-V block. The carotid sinus reflex previously ineffectual will often be effective within 15 minutes following the use of prostigmin.

Quinidine sulphate, 0.3 gram (5 grains), given by mouth every hour, has been found in our series to be the most effective drug therapy. Two or three doses are usually enough but sometimes the maximum of eight doses must be given. This is probably the safest form of treatment for all types of paroxysmal tachycardia and certainly is the most effective in ventricular tachycardia.

Paroxysms in elderly individuals or those who are greatly disturbed and have severe symptoms, particularly pain, are relieved following the injection of morphine sulphate, $\frac{1}{4}$ grain subcutaneously. This quiets the patients and the vagus stimulating effect of morphine frequently interrupts a paroxysm.

In patients who have received no digitalis and who present evidences of heart failure, rapid digitalization by mouth in massive doses may be effective.

Intravenous injections of 10 c. c. of a high grade of digitalis extract (3.5 cat units*) or of digalen, digiglusin or digifoline have been uniformly successful in interrupting attacks. The highly purified preparations of digitalis lanata, particularly digoxin in 1 to 2 mgm. doses and the lanatoside C, 1 to 2 mgm. doses, in our experience have stopped paroxysms of atrial tachycardia when other methods have failed. Magnesium sulphate in 20 per cent solution, intravenously, the first 5 c. c. dose given slowly and the second 5 c. c. and the 10 c. c. doses more rapidly has been advocated by Europeans to abort attacks that

*Supplied by the Upjohn Company, Kalamazoo, Michigan.

are refractory to other methods of treatment.

As prophylactic treatment against recurrence of attacks, potassium salts, particularly the iodide of potassium in 10 to 15 drops three times a day, if well tolerated, should be tried. This is more effective as a preventive measure in the atrial type. In the ventricular type quinidine sulphate in 5 grain doses, two or three times a day, will often ward off episodes. In elderly patients, particularly those who show any tendency to congestive failure, maintenance of digitalization often prevents recurrences.

OTHER ATRIAL CIRCUS MECHANISMS, FLUTTER AND FIBRILLATION

Disturbance in cardiac rate and rhythm resulting from circus or circulating stimulation are most common clinical disorders. Atrial circus mechanism was clinically demonstrable in half of our patients with heart disease and congestive failure. Rheumatic heart disease with mitral stenosis, coronary arteriosclerotic heart disease and hyperthyroid heart disease usually sooner or later are complicated by flutter or fibrillation. In rare instances of severe infectious diseases, as pneumonia and epidemic influenza and noxious gas inhalation and after undue exertion, flutter or fibrillation is precipitated. It is interesting to note that syphilitic aortic disease, angina pectoris and *Streptococcus viridans* endocarditis are rarely accompanied by atrial fibrillation. Occasionally no other definite criterion of heart disease may be established in a patient with atrial fibrillation.

Disturbances in rate and rhythm due to abnormal circulating stimulus formation are most common in patients with serious heart disease and rare in patients with normal hearts. Circus mechanisms in which a ring of atrial muscle about the great vessels or the auricles is so changed physiologically that reentry is possible because the definite refractory period produces rapid fire impulse formation and stimulation with very high atrial rates. Atrial flutter results when the circus pathway is short and regular while atrial fibrillation appears when there are islands of tissue of irregular refractoriness within the longer circus

pathway. Blocking and irregular reentry occur and give rise to the highest stimulation rate. These processes may of course occur in the ventricle but when so located they are of such serious moment that they rarely come to clinical attention.

The clinical diagnosis of atrial flutter is more difficult and not as certain as that of atrial fibrillation. Atrial flutter of the pure form produces rapid, regular atrial contractions at the rate of 240 to 380 per minute. There is practically always a two-to-one block so that a patient with a regular rhythm and a ventricular rate and consequently a pulse rate of 120 to 190 per minute should be clinically suspected of having atrial flutter. In rare instances a one-to-one ratio may exist and a high rate result. The rhythm is practically always regular. Irregular rhythm may result from varying grades of A-V block, but becomes regular with exercise. The usual extreme but temporary susceptibility of the A-V conduction in most patients with flutter to reflex vagus blocking from carotid sinus or ocular pressure is diagnostic of flutter.

The electrocardiographic evidence is conclusive but occasionally it is difficult to differentiate a rapid paroxysmal atrial or junctional tachycardia from a slow auricular flutter with a two-to-one block. The circus mechanisms are usually perfectly regular at a rate above 240. The lability of the carotid sinus reflex usually makes it possible to increase the grade of A-V block during the inscription of the electrocardiogram and make clear the atrial activity. These "C" or "F" waves are absolutely regular in spacing, size and contour at a rate of 240 to 380 per minute. They may resemble inverted P or T waves at times. These may be upright or diphasic or flat topped but always absolutely regular. The rate may change slightly when the ventricular mechanism is suspended by carotid sinus pressure. Digitalis increases the rate and converts it to fibrillation and quinidine slows it and converts it to normal sinus mechanism. When the circuses, "C" or "F" waves, are not absolutely regular, the condition is spoken of as impure atrial flutter

and when still more irregular and with irregular blocking and more rapid it is coarse atrial fibrillation.

Atrial fibrillation produces an absolutely irregular heart action in rhythm, force and rate. There may be runs of rapid beats of atrial fibrillation. The ventricular rates are only moderately increased usually to 120 or 140, rarely over 160 and extremely rarely to 180 or more. Digitalization increases the block and slows the heart rate. Atrial fibrillation with a slow ventricular rate may be the result of preponderant conduction tissue pathology that has developed following coronary arteriosclerosis.

The electrocardiographic diagnosis of atrial-fibrillation is made on the basis of irregular circus mechanisms at atrial rates of 380 to 600 per minute but with high grades of A-V block. The waves which were coarse but irregular are termed "F" waves. These "F" waves vary very much in height and are sometimes very fine and practically isoelectric. There are no definite P waves or constant P-R intervals and the ventricular responses occur very irregularly at varying rates. Carotid sinus reflex may in certain cases slow the ventricular rate. A nodal rhythm must of course be ruled out but a regular ventricular response is the electrocardiographic criterion of nodal rhythm but may be impossible of differentiation in atrial fibrillation with complete heart block.

TREATMENT OF FLUTTER AND FIBRILLATION

Therapeutic control of the excess stimulation of the circus mechanism or absolute interruption of the same may be practiced. In the paroxysmal types of flutter or fibrillation prophylactic drug therapy is in order. Digitalis is of course the sovereign remedy for these conditions but quinidine has often proved to be a most valuable next best drug and frequently quinidine is the drug of choice.

Digitalis preparations have been increased greatly in number and in potency. The new U. S. P. powdered leaf of digitalis purpurea made up in pill or tablet form, has been standardized against a strong interna-

tional standard so that one grain of the powdered leaf contains one cat unit. This results in a 30 to 45 per cent increase in potency of most preparations on the market so that one grain doses are widely used instead of 1½ grain (0.1 gram) tablets. The total mass necessary for digitalization is now roughly calculated as one grain per ten pounds of body weight and one grain is considered to be the average amount destroyed per day by the usual patient's body metabolism. Many new and satisfactory purified extracts have been developed for intravenous use in emergencies but these are rarely necessary in flutter or fibrillation.

New powerful digitalis lanata preparations particularly digoxin, digilanids A, B, C, and lanatoside C, have been found to be very promptly effective but without the usual persistence of action of the digitalis purpurea. The digitalizing dose is very small; for digoxin (1.5 to 2 mg.) 1/45 to 1/30 grain for digitalization but it requires (0.5 mg.) 1/130 grain daily for maintenance. Tablets of digoxin for oral administration are useful since absorption is very prompt and effects are noted within three hours.

New strophanthus kombe and gratus glucosides are now available and are used in some quarters for the initial emergency cardiac tonic effect in (0.25 mg.) 1/250 grain dose. This drug is rarely necessary in flutter and fibrillation cases and usually is contraindicated because most fibrillating patients have had digitalis administered. Strophanthus was long ago shown to be an unreliable drug when given by mouth, primarily because of the erratic rates of absorption.

Digitalization is usually accomplished by the rapid or moderately rapid method in flutter or fibrillation. Half the total calculated amount is administered within the first six to twelve hours and the third quarter six hours later, then at six hour intervals a sixteenth of the whole dose. Slower digitalization may be carried out at the rate of three grains every three hours for not

more than six doses, then the dose reduced to one grain for the next six hours. The dosage is controlled by hourly observation of the heart action and rate. In rare instances flutter is changed directly to sinus rhythm by digitalis but usually the two-to-one block increases to four-to-one and simulates a slow regular heart action. The carotid sinus reflex slowing is, as a rule, still transiently effective, then atrial fibrillation is precipitated and by continued digitalization the A-V block is increased and maintained until the heart or ventricular rate drops to between 70 and 60 per minute. If there are no signs of congestive failure, digitalis medication is stopped with the hope that as the blocking effects wear off the sinus pacemaker will reestablish itself.

We have found, however, that cinchonization is necessary in practically all of our flutter cases digitalized into fibrillation to reestablish sinus rhythm. Cinchonization is carried out practically always in the routine fashion for atrial fibrillation, whether or not flutter has preceded. In fibrillators with failure preliminary digitalization is advocated. Quinidine sulfate in a 1½ grain (0.1 gram) dose capsule is given as a test dose and if there is no idiosyncrasy shown within a few hours, then one 5 grain capsule of quinidine sulfate is administered every hour for not more than eight doses then one every four hours for three or four doses a day. Usually the normal sino-atrial activity is reestablished after the first three or four doses.

SUMMARY

The common causes of rapid heart action, namely sinus tachycardia; paroxysmal tachycardia of atrial, junctional and ventricular origin; atrial flutter and fibrillation, have been discussed.

The physiologic or pathologic basis, the causative factors, the clinical diagnostic criteria, the tests, the electrocardiographic "signs" and the therapy of each type of rapid heart action have been outlined.

REFERENCE

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THE VALUE AND LIMITATIONS OF ELECTROCARDIOGRAPHY*

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Electrocardiography has a definite and valuable place in the diagnosis and management of cardiac disease. It is, however, only one part of the complete examination of a patient to evaluate the cardiovascular status. An approximate evaluation of the relative values of the steps in a complete cardiovascular examination would probably be as follows:

History 40 per cent; complete physical examination 35 per cent; electrocardiogram 15 per cent; x-ray 5 per cent, other laboratory examinations 5 per cent.

Electrocardiography was never intended to, never has, and never will be capable of replacing a complete history and complete physical examination. It is not a method for the short cut to cardiac diagnosis, and remember it must be properly interpreted to be of any value. Let me first mention the limitations of the method before stating its value.

It never makes the diagnosis of the presence or absence of valve disease, except occasionally suggested indirectly. It rarely makes an etiologic diagnosis, and then only by inference, indirectly. For example, right axis deviation with P wave changes suggests mitral stenosis of rheumatic origin; a prolonged P-R interval suggests an active rheumatic infection; and the typical pattern of myocardial infarction suggests coronary artery disease. Electrocardiography never makes a diagnosis of the functional integrity of the myocardium or myocardial efficiency of degree of cardiac compensation or decompensation. This is the most important consideration in cardiac diagnosis and must still be made chiefly upon an adequate history aided by certain

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physical signs and certain laboratory procedures such as functional tests (Master's), circulation time, venous pressure and vital capacity. Therefore an electrocardiogram requested to determine the functional status of a patient with cardiovascular disease, as for example preoperatively as a risk, is not capable of doing this and with this purpose in mind is wasted. This could be determined without an electrocardiogram by a proper history and physical, often history alone. An electrocardiogram may give added information regarding the type and degree of myocardial changes, but no information as to whether the patient is or is not a suitable operative risk.

An abnormal electrocardiogram always indicates the presence of disturbed cardiac function, either temporary or permanent. This is important to remember: Changes shown may be reversible or irreversible.

However, a normal electrocardiogram does not always indicate the absence of organic heart disease, since in a few cases a patient with organic heart disease even of a serious degree may have a normal electrocardiogram. The more recent use of precordial electrocardiograms has reduced this possibility, but it still exists. The chief example of this is the patient with coronary artery disease and angina pectoris. The absence of abnormal findings may apply, as you well know, not only to the electrocardiogram, but to the physical examination, to the x-ray, and to all other laboratory examinations. The diagnosis must often be made on the history alone. Other instances where the electrocardiogram may be normal in the presence of heart disease are hypertension, syphilitic aortitis, early rheumatic heart disease, and congenital defects.

To state these facts in another way, it can be said that a patient without cardiac disease always has a normal electrocardiogram, and a patient with cardiac disease always has an abnormal electrocardiogram except for a few exceptional cases as stated above. It may be said that the electrocardiogram is of value in a positive way but not absolutely in a negative way. This fact does not depreciate the value of the

method any more than the same fact regarding the Wassermann test, as one other example, depreciates the value of that test.

One cannot judge the severity of the cardiac damage, the degree of cardiac efficiency, or therefore, the prognosis in any given case of cardiovascular disease by the degree of abnormality present in the electrocardiogram. A patient with serious cardiac damage in complete heart failure with a very poor prognosis may have an electrocardiogram with fewer abnormalities than a patient with cardiac damage of another type without decompensation and with an excellent prognosis. Two patients with equally abnormal electrocardiograms may have entirely different clinical pictures, one well compensated, the other markedly decompensated. The electrocardiogram therefore gives no information as to the efficiency of the cardiac musculature, the important consideration in determining cardiac sufficiency or compensation.

As to etiology again, the electrocardiographer can only report the abnormalities present and rarely indicate anything concerning the cause of such abnormalities. Sometimes he knows from experience that certain abnormalities or patterns are usually produced by certain etiologic types of heart disease, such as hypertensive heart disease, arteriosclerotic coronary heart disease, especially with myocardial infarction, rheumatic mitral stenosis; rheumatic heart disease, congenital heart disease, changes due to digitalis. He may occasionally suggest these possible etiologic diagnoses, but it remains for the clinician to correlate the electrocardiogram with the clinical facts to arrive at a correct etiologic diagnosis. In many cases the changes present may be due to one or more of several possible causes, temporary or permanent, and the electrocardiographer can only consider such changes non-specific and the clinician must attempt to do the rest.

In interpreting the electrocardiogram, therefore, one's chief object is to decide whether the electrocardiogram is normal or abnormal, and record the abnormalities. If a certain pattern exists, he may suggest the

possible cause. The electrocardiogram must be evaluated along with the clinical facts. A similar situation is true in x-ray examination and the laboratory tests.

I have followed the method of reporting the electrocardiogram as within normal limits, probably within normal limits, borderline electrocardiogram, probably normal, and definitely abnormal. The reason for these several indefinite groups is the fact that there are wide ranges of normal and certain changes which alone are of questionable significance. It is true too that the subject is constantly changing, and so the interpretations. I have followed the conservative attitude of erring on the normal rather than the abnormal side, reading too little rather than too much significance into such changes.

Many clinicians expect entirely too much of the electrocardiogram. For this reason they are disappointed in its use. The trend previously has been to read entirely too much into the electrocardiogram; now the trend is to read less and less into it. This does not decrease its value a single bit. The electrocardiographer is often questioned and criticized concerning the interpretation of an electrocardiogram. The referring physician fails to realize that he knows only the age of the patient, position in which the electrocardiogram was made, and the amount of digitalis the patient has had before interpreting the tracing. Any additional information may prejudice his interpretation. The individual who has personally evaluated the clinical symptoms and signs should then correlate the electrocardiographic findings with such facts for a complete diagnosis.

VALUE OF ELECTROCARDIOGRAM

After such lengthy discussion as to the limitations of the electrocardiogram, what is its value?

1. The electrocardiogram will always make an absolute diagnosis of the arrhythmias. Of course, this is true only if the individual reading the electrocardiogram is capable of correctly diagnosing the arrhythmias electrocardiographically. Our present complete understanding of the arrhythmias

is based upon their electrocardiographic characteristics, and the more accurately a physician understands the arrhythmias electrocardiographically, the more accurately does he understand them clinically, and the less often will he need the electrocardiogram to diagnose them.

2. The electrocardiogram records disturbances in the electrical activity of the cardiac musculature and its neuromuscular structures. It therefore records the presence or absence of myocardial changes which can be determined by no other means at our disposal. It has been likened to a living autopsy on the heart. It will show changes in A-V conduction, changes in auricular musculature, in intraventricular conduction, presence and location of bundle branch block, changes or injury to ventricular musculature, which can be determined in no other way. In acute infectious diseases the electrocardiogram may show changes indicating a toxic effect upon the myocardium which can be determined in no other way, which has a direct bearing on the management of the case.

3. As a corollary of the second use, and perhaps its most valuable use, it will absolutely diagnose and localize coronary occlusion with myocardial infarction in practically all cases at some stage of its course. The importance of this fact need not be emphasized since this is such a serious diagnosis and carries with it so many important considerations.

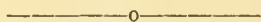
4. It is useful in the management of cardiac patients by observing progression or retrogression of changes. This is true in all types of cardiac disease and especially in patients with myocardial infarction.

5. It determines the presence and degree of drug effect, especially digitalis and quinidine. In a patient in whom the amount of previous digitalis therapy is unknown or uncertain, an electrocardiogram will determine whether or not digitalis effects are present and so help to determine the dosage of further therapy, and in patients receiving digitalis or quinidine it serves as a guide to full therapeutic or toxic levels.

6. It helps to determine whether cardiac enlargement is chiefly of the left or right ventricle; often of considerable importance.

From this presentation I am sure you will agree that there is a definite place for the electrocardiogram in cardiac diagnosis and management; a function of considerable value. You can also realize its limitations. By appreciating both one can use electrocardiography to great advantage, and neither expecting too little nor too much, not be disappointed by the results obtained.

Because the electrocardiogram does give information which can be secured by no other means, it is evident that no examination of the cardiovascular system of a patient is complete without an electrocardiogram. Many times it will give no further information or assistance, it is true, but many other times it will do so.



SYMPATHETIC NERVE BLOCKS IN REHABILITATION OF THE INJURED EXTREMITY

REPORT OF CASES; AND A DISCUSSION
OF CAUSALGIA

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Pain sometimes remains as the only symptom to interfere with an otherwise satisfactory result following an injury. Pain associated with joint stiffness and muscle weakness may be an even more obvious reason for prolonged disability and sometimes pain appearing at each end of the very limited motion in joints may be the chief deterrent to exercise and forced motion necessary for recovery of function. These pains are conveyed largely by the sympathetic nervous system. The initial injury may have been very severe with or without fractures, or it may have been relatively mild. Because pain is a subjective complaint and as long as its presence is maintained by the patient the possibility of its existence cannot be absolutely denied, its significance is frequently controversial, particularly in certain medico-legal cases. The result in a patient who has recovered to such an extent

that from the objective standpoint he appears able to work, may be marred by his insistence that he has pain. Every surgeon who treats injuries, knows that the persistence of pain may be a very discouraging and a very annoying complaint, so much so, that its presence may irritate the doctor who thinks he has obtained a splendid result, but that the patient will not admit it. On the other hand, even when no thought of compensation or lawsuit is involved, pain of a minor or severe character is known to follow trivial or serious injuries. These pains may persist for months or years and may be so annoying to the patient, that they result in a mild psychopathic trend and even a change in personality.

Weir Mitchell first described and named a condition *causalgia* which he observed in soldiers who had been injured during the Civil War. *Causalgia* literally means a burning pain and the type of pain he described from incomplete severance or injury of a nerve was very intense. The soldiers had a severe burning pain in the distribution of the nerve affected. The area was hyperesthetic. There were paresthesias and the subject protected himself from the slightest stimuli. Heat, cold and even wind would cause an exacerbation of the pain to such an extent that they attempted to avoid them. Pains of a milder character which may not be regarded as typical *causalgia*, occur more frequently and may persist late in convalescence from injuries.

Leriche was the first to realize the practical importance of the sympathetic nervous system in arresting pain of such character. He however gives credit to Francois Franck for preceding him in experiments which showed that the sympathetic nervous system had centripetal elements. In 1915 Leriche noticed a case in which there was a vasomotor phenomenon associated with pain and cyanosis resulting from a bullet wound in the right axilla. The hand was cold and a deep purple color. The slightest touch caused painful symptoms. He performed a periarterial sympathectomy on the brachial artery. This resulted in prompt cessation of the burning pain and the patient recov-

ered. Since that time the relationship of causalgia to the sympathetic nervous system has been repeatedly confirmed.

I wish to report several cases and show some photographs of patients who had had adequate time for complete recovery from serious or trivial injuries, and whose pain persisted to prolong their disability and interfere in some instances with the mobilization of stiff joints. The pain in these patients was relieved by sympathetic nerve blocks with novocain during treatment in Touro Infirmary. The associated treatment was physiotherapy and, in one instance neurolysis. All of these patients came under my care months after their original injury. The type of case herein discussed and illustrated is one in which the injury has long preceded the then existing symptoms which were unduly prolonging the disability.

CASE NO. 1

G. R., a white man aged 41 years, was referred to me by an insurance company. Over four months prior to this he had been injured in an automobile accident, which occurred while he was driving a truck in Opelousas, Louisiana. The accident resulted in injury to his left forearm. Roentgenograms at that time showed a fracture of the humerus just above the elbow. The fracture was reduced by his doctor and a cast was applied. He had some swelling of the hand. The cast was removed after six weeks. Ever since then his hand and arm had been painful and stiff. He could not move his fingers and forced motion caused severe pain. He had been given frequent physiotherapy treatments but his progress had been very slight and the elbow, wrist, fingers and hand were so stiff and painful that he could hardly move them at all.

Examination at the time he was admitted to my care showed a well developed, middle aged white man. His left elbow was at 90 degrees flexion and his wrist and fingers were straight (fig. 1). He had not over 25 degrees in entire range of motion in the elbow. There was some stiffness in the shoulder. Forty-five degrees abduction was the limit. The wrist was stiff. He had not over 30 degrees of flexion-to-extension motion in it. His fingers were in the accoucher position. They were adducted and stiff. His total amount of motion including all the joints of the fingers was not over 20 degrees. He could not abduct his fingers at all; they could not be separated. There was slight motion in the thumb, the total range of extension and flexion being through an angle of approximately 30 degrees. He could not approximate his thumb

to the ends of the fingers. There was marked atrophy of the muscles of the forearm and hand; the hand was extremely weak. There was an obtunded sensation to touch and pin prick on the fingers. The distribution of this was glove-type.

Roentgenograms showed marked osteoporosis of the bones of the left hand and arm.

Laboratory tests showed nothing remarkable in the blood count, the Wassermann, nor in the urinalysis.

The diagnosis of stiffness and pain of the hand and arm with causalgia included also a diagnosis of Volkmann's contracture. He was admitted to Touro Infirmary for treatment.

On July 26, 1940, and on August 8, 1940, the left stellate sympathetic ganglion was blocked by infiltration of 10 c. c. of one per cent novocain. On each occasion following these blocks there was a rapid appearance of Horner's syndrome with enophthalmos, a small pupil, and absence of sweating on that side of the face. The arm became warmer. The patient remarked that pain ceased following these blocks. Attempts to move his joints following these blocks with novocain resulted in very little pain compared to similar attempts prior to the sympathetic nerve analgesia. The absence of pain persisted surprisingly long, all that afternoon. On the following day, though pain on motion had returned, it was much less than preceding the injection. Daily physiotherapy in the form of diathermy, massage, whirlpool bath and active and passive motion was given. The improvement from physiotherapy was more dramatic immediately following the sympathetic blocks. In a few days function of the joints and muscles began to return rapidly. The range of motion in all joints increased, to such an extent that when he was discharged from the hospital two weeks following admission, he could approximate the thumb to each finger. He had 100 degrees of motion at the elbow and 45 degrees motion at the wrist. He could get the thumb over his second and third finger in such a manner to make an incomplete grip. With rapid improvement he was dismissed to go home and continue the active use of his extremity.

Because the improvement seemed to be stationary, he was re-admitted to Touro Infirmary on August 22, 1940. On August 24, 1940, the left cervical sympathetic stellate ganglion was blocked with novocain. During this second stay at the hospital physiotherapy was re-instituted including diathermy, whirlpool baths, active and passive motion. The patient was discharged from the hospital on August 31 and was asked to continue active use of the extremity at his home. Improvement continued gradually. Although in December he was judged able to work, he could not get his old job back. This incidentally is often a serious deterrent to progress in a patient who otherwise would be rapidly rehabilitated. In January, 1941, he was

able to make a fist; almost completely closing the hand. Extension of the fingers, and abduction of the fingers was excellent. He had approximately complete range of motion in the elbow. The range of pronation and supination was excellent. He

could raise his arm straight over his head. The strength of his left hand and arm was good; he was able to handle beer cases with it. He was discharged as well and able to return to work as a truck driver.

Before Treatment July 1940



After Treatment January 1941



Fig. 1.—Case 1.—Illustrations show the condition of the extremity before and after treatment by sympathetic nerve blocks with novocain and physiotherapy. The arm had been injured four months previously. Before treatment the hand and wrist and elbow were extremely stiff and painful. Almost the entire range of motion which was very

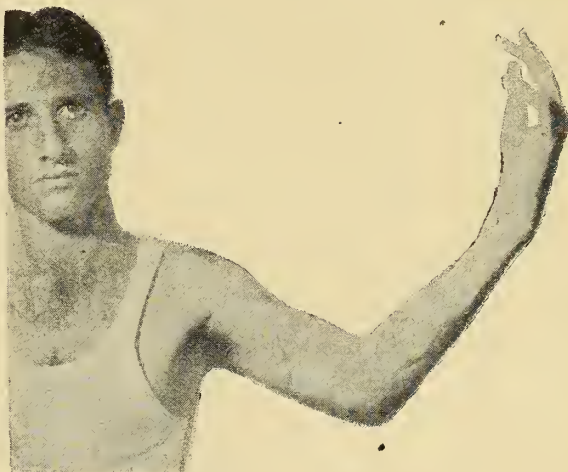
little is shown in the upper pictures. There was an atrophy of muscles and the condition resembled a Volkmann's ischemic contracture. Sympathetic nerve blocks relieved the pain. In the lower pictures the result is shown. He was able to return to work as a laborer.

CASE NO. 2

J. L., a young white man aged 24 years, was first seen by me on May 23, 1941, three months after an accident which occurred on February 23, 1941. In this accident his left arm was hurt by being caught in a conveyor belt and being wrung so that severe lacerations resulted. His left ring finger was torn off at the base. He had a severe laceration of the left forearm on the medial aspect and another severe laceration on the medial aspect of the left upper arm. There was a chip fracture of the ex-

ternal supracondylar ridge. The lacerations were repaired by his doctor and his arm was put in a splint for one month. Following that, massage, heat treatment and active and passive motion were encouraged, but he had lost much of the normal range of motion of his hand and arm. In addition, he had pain and hyperesthesia in the region of the distribution of the ulnar nerve and almost complete anesthesia of the left fifth finger.

Examination revealed a well developed young



May 23, 1941



July 24, 1941

Fig. 2.—Case 2.—Three months previously, he had his left arm caught in a conveyor belt. Stiffness and pain, weakness and inability to make a fist resulted. The complete range of flexion and extension is shown in the upper pictures. Neu-

rolysis for partial paralysis of the ulnar nerve, sympathetic nerve blocks with novocain and physiotherapy resulted in good recovery, so that he could return to his previous manual work in a container factory.

man and the positive objective findings were related almost entirely to the left upper extremity (fig. 2). The left ring finger was off at the base of the proximal phalanx. The wound was entirely healed. He could flex his left little finger through a range of only 20 degrees. The finger remained in a slight flexion at the proximal interphalangeal joint. He had about 45 degrees of total flexion-extension motion in the joints of his index and middle finger. The thumb had a fair range of motion approximately 90 degrees of flexion, but it was impossible for him to approximate the thumb to the tip of the index and middle finger. He also could not touch the stump of his ring finger nor the tip of his little finger. There was definite hyperesthesia over the ulnar side of the hand and almost complete anesthesia of the left fifth finger. He could not abduct his fingers at all. Because of the obtunded tactile sensation in the ulnar nerve distribution and the inability to abduct the fingers, an involvement of the ulnar nerve was judged to be present, and that it was probably caught in the long scar about ten centimeters in length over the anteromesial aspect of the arm below the elbow. Flexion of the left fifth finger by the observer resulted in dimpling of the scar on the forearm which seemed to indicate that the tendon itself was in continuity. This was an important observation as was evident in the postoperative result. It was not certain whether the ulnar nerve was caught in the upper scar about six centimeters in length transversely across the inner aspect of the upper arm, or in the lower scar on the forearm. The fact that pressure over the ulnar nerve, posterior to the internal epicondyle caused pain which was not an unusual type of pain, seemed to indicate that the nerve was involved in the lower scar. There was definite stiffness at the elbow joint with total range of motion of about 90 degrees. Pronation and supination of the forearm were restricted to a range of 45 degrees instead of the normal 180 degrees. There was also some stiffness in abduction of the shoulder.

All laboratory tests including the blood chemistry, blood count, serologic test for lues and the urinalysis, showed nothing remarkable.

This patient was sent to me by an able surgeon in another community with the request that I give my opinion as to whether the disability in his arm should be accepted as permanent and whether the company should not settle the case as a permanent and total loss of that extremity. My reply was that I thought the man could be totally rehabilitated to go back to his previous work handling 15 pound iron rods in a container factory.

He was admitted to Touro Infirmary. On May 27, 1941, under ethylene anesthesia, the ulnar nerve was explored in the region of both scars because of the opinion that it was bound in a scar and that a neurolysis was indicated. The ulnar nerve

was exposed in the upper arm. It was definitely not involved in the upper scar. This wound was closed. Exploration through an incision lateral to the jagged scar on the forearm permitted exposure of the ulnar nerve under the flexor carpi ulnaris on the flexor profundus digitorum. There for a distance of approximately five centimeters the nerve was bound in a firm scar. This scar was released by carefully dissecting the nerve free and a piece of muscle was turned around the nerve in such a manner to protect it from a re-adhesion of the dense scar extending down from the skin. Following this operation the obtunded sensation on the ulnar side of the hand was immediately improved and he could abduct his fingers much better than prior to the operation. Acute tactile sensation on the ulnar side of the hand and the fifth finger began to appear. His wound healed primarily. During this operation the palmaris longus tendon was lengthened by Z incision. This was done because the wrist was held in approximately 35 degrees flexion and attempt to extend it more than that showed a marked prominence of the palmaris longus. This tendon lengthening proved to be of distinct value, because following this operation, his wrist could extend to 45 degrees more than the straight angle.

On three occasions, June 17, 20 and 24, during the period following the operation, the left sympathetic stellate ganglion was blocked with novocain, one per cent solution. On each occasion there was a definite subjective improvement. The patient said that his arm felt better; that there was less pain during the physiotherapy and exercises. Improvement in joint function and range of motion was rapid. He was dismissed from the hospital very much improved. He could for the first time make a satisfactory fist and could approximate his thumb to the index, middle, and little fingers. The flexion of his index and middle fingers was not complete and the range of extension of his wrist (only 45 degrees from the straight angle) remained a most disabling trouble. Improvement in flexion and extension of the elbow had been so marked that he had almost complete range of motion, approximately 25 degrees short of complete extension and approximately 15 to 20 degrees short of complete flexion. Pronation and supination were good. He had very little flexion of the middle finger at the interphalangeal joint, but 90 degrees flexion of the little finger at the metacarpophalangeal joint. He was kept under observation with encouragement to continue active use of the extremity and to take vigorous exercise. Improvement continued so that on July 22, 1941, he was sent back to work to start in the same job which he previously had. This work was in a box factory and his job was to handle long iron rods which averaged about 15 pounds in weight. It was thought that the same job which he had previously

would be more encouragement for his recovery than a much softer job which might have magnified his obviously partial permanent disability. His partial permanent disability was evaluated according to State allowances for loss of certain functions of the hand and arm at 35 weeks of disability. He has remained a good worker in his previous occupation.

CASE NO. 3

Mrs. E. O., a white female, aged 46 years, had fallen on her right hand eight months previously. Pain in the wrist resulted. X-rays taken by her doctor were negative for fracture or dislocation. The wrist was strapped, but ever since then she has had continued pain in the wrist to such an extent that particularly extension results in a sharp pain. She also had weakness of the hand and wrist. Movements of the wrist which precipitated the pain magnified the weakness. This weakness was so severe that she could not brush her teeth. Attempts to work with the arm resulted in a subsequent period of a rather severe pain and stiffness in that wrist. She frequently attempted to work in her garden thinking it would help, but instead of helping, in the subsequent hours and days the wrist was so painful she did not wish to attempt such exercise again.

Examination of the patient revealed no notable objective findings except those relating to the right wrist and hand. She had numerous other complaints, including gastrointestinal disturbances which proved to be, after subsequent examination and tests, on a functional basis. The right hand was very weak. The grip in this hand was much weaker than that of the opposite hand and when she attempted to squeeze an object she had pain in her wrist. The wrist was tender particularly posteriorly over the radio-carpal joint. Hyperextension produced sharp pain. There was slight limitation of hyperextension and very little stiffness otherwise. There was slight atrophy of this hand and it was colder than the opposite hand. Roentgenograms of the two hands showed osteoporosis of the bones of the right hand and of the lower end of the radius and ulna. Laboratory tests showed nothing notable.

This individual was judged to be somewhat of a constitutional inferior and psychopathic personality. It was realized that she may be exaggerating the degree of pain she actually had. As she evaluated it, it was something very intense and was making her quite unhappy, besides interfering with many of the things she liked to do and the performance of many normal duties. She was admitted to the hospital for physiotherapy. The right cervical sympathetic ganglion was blocked on two different occasions. Following each block a Horner's syndrome developed. Temperature studies were made, using a thermocouple prior to and following the sympathetic blocks. There was a defi-

nite increase in the temperature at different levels of the affected extremity; the greatest increase being 3° C. This increase was not only over the temperature readings of that same place prior to the block, but was also greater than the temperature readings on the opposite extremity. Following these blocks she said that her hand and wrist felt fine. Pain disappeared and the result seemed to be excellent. Before dismissal from the hospital, where she remained for a period of nine days, her complaint relative to this extremity had completely disappeared. She felt that she had an excellent result. Subsequently the pain reappeared after several weeks but was very mild and disappeared again. Reports as late as six months following this are that her hand has remained well.

CASE NO. 4

D. C., a white male, aged 42 years, was injured seven months previously in a fall from a scaffold. At that time he had a dislocation at the proximal interphalangeal joint of the right fifth finger. Roentgenograms showed that the reduction was good but he had a persistence of pain. This pain was referred up the ulna side of the hand and was said to be very intense. Use of the hand aggravated the pain. When admitted to my care (May 7, 1940), his left fifth finger was stiff in about 45 degrees flexion at the proximal interphalangeal joint. There was considerable pain and tenderness at the region of that joint and some edema or thickening of the periarticular tissues when compared with the same joint of the opposite hand. He could flex his finger through a range of 40 degrees. Attempts to move the finger by the observer resulted in complaint of severe pain.

Here was an instance where a man had a disability that was quite severe and which was regarded elsewhere as sufficient to keep him from working as a painter. The only feature of the disability however, was the pain, because the lack of motion in the joints of the fifth finger was insufficient disability to prevent him from working at his previous trade.

Here the question of compensation and recovery of damages was a possible consideration and it was realized that the man might be magnifying his complaints. However, he did have objective evidence that was consistent with pain and it was realized that a treatment which would result in recovery from the pain would also result in his complete rehabilitation. For that reason it was deemed justifiable and advisable to admit him to the hospital for treatment. On three different occasions while he was in the hospital for a period of nine days, the left stellate sympathetic ganglion was blocked. Following these blocks each time a Horner's syndrome developed and his subjective evaluation of the condition was that it was much better. He had practically no pain following the effective blocks even when motion was forced. Using physio-

therapy as an adjunct, the range of motion increased rapidly so that he could extend his finger to about 25 degrees short of normal and could flex it through a range of 100 degrees. These objective findings were consistent with a good result and the subjective findings were likewise consistent with recovery. He was dismissed to go to work at his previous trade on June 19, 1941. He returned to work as a painter and continued on the job.

DISCUSSION

Not all patients respond as well as those whose case histories are herein recorded. I have used sympathetic blocks on a number of other occasions for residual pains following injuries and for causalgia. In at least 75 per cent of the instances the results might be regarded as entirely satisfactory. On two different occasions I have resected the sympathetic ganglia for causalgia; once the cervical sympathetic ganglion; once the lumbar sympathetic ganglion. In each of these instances the improvement was remarkable. However I do not believe that it is justifiable to do the radical operation where repeated novocain blocks will accomplish the same result.

To anyone who has not had some experience with sympathetic blocks and sympathetic surgery, the relief of pain in numerous conditions following novocain blocks or ablation of the sympathetic nervous system is remarkable. The good result is hard to believe when the physiology of nerve pain conduction has been thought of as a fundamental function of the somatic nerves. The real explanation of the relief of pain following inactivation of the sympathetics by novocain blocks or by ganglionectomy is far from adequate and complete. However, it does work. There is relief of certain intense deep pain by novocain block of the sympathetic and by sympathectomy. Leriche arrived at many of his conclusions from a practical standpoint, almost an experimental standpoint on human beings. It has been fortunately a happy type of human experiment because the results are so gratifying.

SUMMARY

A brief discussion of pain and of stiffness of joints resulting from injuries was

presented. The pain following injury may be the only residual which would interfere with an otherwise satisfactory or perfect result. The existence of this pain under such circumstances becomes a dominant obstruction to complete recovery. Whereas sometimes there is a willful exaggeration of the pain by the patient for conscious or involuntary efforts to recover damages or compensation, on the other hand the pain is frequently obvious from an objective as well as a subjective standpoint, that is, when the objective evidence is such that accompanying pain is to be expected. Four instances are given in the form of case reports where repeated sympathetic nerve blocks with novocain in conjunction with physiotherapy resulted in recovery of the patient and rehabilitation of an extremity. In two instances the results otherwise had been regarded as permanent and total disability.

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PITFALLS IN EARLY DIAGNOSIS OF LEPROSY

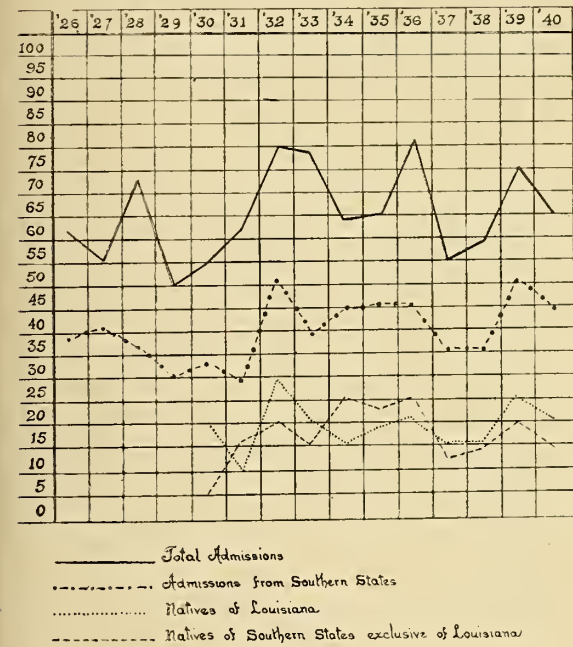
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The status of leprosy in Louisiana and other Gulf states seems to be stationary. The disease is not on the increase but neither is it dying out. The admissions to the National Leprosarium at Carville seem to substantiate this fact. No definite decline has been noted in new admissions from year to year. If anything, there seems to have been a slight tendency towards an increase in the admissions from the Southern States

†From the U. S. Public Health Service, U. S. Marine Hospital, Carville, Louisiana.

in the last ten years. This is shown in the following table:

TABLE 1



Most of the patients admitted from the Southern states are natives of the Gulf states, the great majority of them being born in Louisiana, Florida and Texas. In these states leprosy can be considered to be endemic, whereas in the other states it is sporadic.

The figures in the above table for the Southern states seem to indicate that the average patient had leprosy long enough before admission to transmit the disease to another individual. In other words the diagnosis and isolation of each case is not made early enough to be effective. The average patient admitted to Carville has had his disease for three to four years and in some instances for ten years or longer. If the private physicians were more alert in the detection of the disease, its continued slow propagation in the Gulf states, where it is endemic, might decline and finally be overcome. The ignorance of the general practitioner when it comes to the recognition of leprosy seems remarkable. Often characteristic signs which should be evident on routine examination are overlooked for long periods of time.

It has been estimated by the leading leprologists of the United States that there are at least 1000 lepers at large in this country. This is a conservative figure. The whereabouts of some of these lepers are known to the medical profession, but a large number of them remain undiscovered. In the Southern states, where most of them live, they are slowly transmitting their disease to other members of their family or to other individuals who come in intimate contact with them. Although we do not profess to know the exact mode of transmission of leprosy, we do know that each new patient contracts it from some person who is already afflicted with the disease. It is true that contagion may occur only under favorable conditions and after prolonged and intimate contact. There is evidence that its propagation may be restricted in large measure to certain family groups. At any rate the favorable conditions are present in Louisiana, Texas and Florida, for instance, where new cases seem to occur as fast as old ones are sent to the Marine Hospital at Carville for proper isolation and treatment. It is an interesting fact that, considering the relative population of the two races in Louisiana, the number of white and colored patients admitted from this state continues to indicate that leprosy is twice as prevalent among the white race. This would seem to refute the theory that this disease is spread solely in unsanitary surroundings and among people of the lower social and economic stratum. One must not expect to find leprosy only in squalid homes.

The average patient coming to Carville is in a fairly well-advanced stage on admission and has then had the disease for a number of years. From my questioning and examination of 425 patients here, it is found that many of them had been treated for other diseases for months, or even years, before leprosy was diagnosed. Often a patient had seen several physicians before the disease was recognized.

It seems to me that the chief fault lies in the family doctor's not thinking of leprosy as a possibility when dealing with clinical manifestations of an unusual nature.

Leprosy is such a rare disease that it seldom enters into the physician's mind, and he thinks of the commoner diseases to explain the patient's complaints. Carelessness in the physical examination and the failure to search for objective findings are other faults which delay an early diagnosis. Finally, the general lack of knowledge of the proper technic for making skin smears for the bacteriologic diagnosis completes the story. Should the practitioners of the Gulf states, and particularly those in Louisiana, Texas and Florida, think of leprosy whenever a diagnosis is not clear-cut they might avoid some embarrassing mistakes. Earlier diagnosis would benefit not only the patient, but, from a prophylactic standpoint, the community as well.

Leprosy, like tuberculosis, is a chronic disease wherein the greatest good can be done while it is still in its early stages. Once either of these two chronic infections has taken a strong hold upon the host, it is perhaps too late to expect real benefit from any form of therapy. This is indeed most true in leprosy.

What then are the early symptoms and manifestations of leprosy that make its diagnosis so difficult? Well-known dermatologists^{1, 2, 3} teach that leprosy is most often simulated by syphilis, granuloma fungoides, lupus vulgaris, syringomyelia, Reynaud's disease, morphea, and vitilligo. Among the 425 patients examined and interviewed at Carville, the diseases for which they were most often treated when they first consulted a physician were syphilis, rheumatism, neuritis, rhinitis, sinusitis, tuberculosis, eczema, ringworm, pellagra or some other dermatoses, and peripheral vascular diseases.

SYPHILIS

It is not unusual for leprosy patients to give a history of having received active treatment for syphilis for several months or even years before the true nature of their malady was discovered. The fact that the cutaneous lesions of the two diseases may be similar is the primary reason for the mistake. Further confusion is created by

the frequency of a positive serology in leprosy.

In a study organized and sponsored by the U. S. Public Health Service⁴ in 1935, 13 different serologic tests for syphilis were performed on blood samples obtained from 50 presumably non-syphilitic patients of the Carville Marine Hospital. Some of these tests were of the complement fixation type and others of the precipitation type. The positive reactions for the different tests varied from 40 to 76 per cent with an average of 53.4 per cent. Since the Wassermann, Kahn and other blood tests for syphilis have recently become so popular as to be almost a routine part of every physical examination, it is not surprising that such mistakes are so common. The average physician does not know that false positive Wassermann reactions are so frequent in leprosy. They should not be too eager to make a snapshot diagnosis of syphilis merely upon obtaining a positive serology. Not only should the test be repeated, but the possibility of consistently false positives should be remembered as this is the rule in leprosy. This error should be eliminated before a diagnosis of syphilis is made and the patient subjected to a prolonged course of arsenicals and iodides which are so detrimental in leprosy.

In reviewing the 425 cases at Carville, the Wassermann and Kahn serologic tests for syphilis, one or both were found positive in 238 cases or 56 per cent, and both were negative in 187. Of these patients, 154 (36 per cent) volunteered the information that they had been administered intravenous and other medications for the treatment of syphilis prior to their being diagnosed as lepers. Indeed even a few patients, who were found to have a negative Wassermann and Kahn serology upon admission here, had been subjected to this treatment, presumably as a therapeutic test. The duration of the antiluetic therapy varied from several months to as long as five years. In the majority of the patients, this treatment seems to have aggravated their leprosy. In fact, it was often this unimprovement and the persistence of a positive serology that

awakened the physician's realization of his error. Sometimes it was the unfortunate patient, dissatisfied with his progress, who sought medical attention elsewhere. Sooner or later, the proper bacteriologic smears were made and revealed the acid-fast offenders.

CASE NO. 1

A white seaman, 55 years of age, was admitted from a city on the Atlantic seaboard. During early life he had spent several years in Texas and Mexico. In later life he had traveled much by sea, visiting several tropical countries. In his past medical history, he had had the usual childhood diseases, smallpox, typhoid fever, influenza, and gonorrhea, but denied a history of syphilis.

Five years prior to his admission to the Federal Leprosarium, he first noticed that spots had appeared on both wrists. He also had a chronic nasal catarrh at about that time. Within the next few years, his earlobes became swollen, and nodules appeared on his face. He then consulted a physician in New York, who, after taking a blood test, informed him he had syphilis and started him on treatment. Not being satisfied, he consulted a number of other physicians. They were all of the same opinion. While making numerous trips at sea, he saw other doctors, not only in the United States ports from New York to California, but also in some foreign ports of Brazil, Argentina and Egypt. In all, he believes that he consulted at least twenty physicians. None of them diagnosed his case correctly and most of them treated him for syphilis. Under this treatment, his disease became aggravated. New nodules developed and the skin of his face, hands, and feet became swollen. He continued to consult different physicians without success. Finally he met a doctor from Mexico City who told him it looked like leprosy. Laboratory tests at a City Board of Health proved that this suspicion was correct, and he was sent to the Carville Marine Hospital for treatment.

Examination upon his arrival here showed that he had an advanced lepromatous type of the disease, diagnosable at first glance to an experienced physician. Skin smears were bacteriologically positive for *B. Hansenii*. Routine sputum examination was positive for acid-fast bacilli (*B. Hansenii*). The blood serologic survey, showed the following findings:

Kolmer complement fixation.....	21—
Kahn precipitation test.....	344
Acosta reaction	44—
Kline diagnostic test.....	4+
Kline exclusive test.....	4+

CASE NO. 2

A white male of Mexican extraction, 36 years of age, was born in Brownsville, Texas, where he had lived all his life. He knew of no leprosy in his

family or intimate friends. In his past life he had had the usual childhood diseases and gonorrhea one year ago, but denied a syphilitic infection.

About four years before admission to this hospital, his face became swollen and spots appeared on his body. He saw a doctor, who, after an examination including a blood test, told him he had syphilis and gave him "shots in the arms and hips." Instead of improving, he gradually became worse. His face became progressively covered with nodular masses, and swollen nodules formed on the ears, arms, and legs. Later he noticed a loss of sensation in places on his legs, hands and forearms. Other nodules developed on his body. About two months before admission to Carville, he went to another physician, who told him he had leprosy and made arrangements for his trip to the National Leprosarium at Carville, Louisiana.

Entrance examination showed confluent lepromatous masses over the forehead and face and discrete nodules over the ears, nose, abdomen, and back. The skin of his forehead and face was diffusely thickened and of a brownish discoloration. Deep ulcerations were present on the front of both legs just above the ankles. Anesthesia was demonstrable over both feet and legs as high as the knees, and over the ulnar surfaces of both forearms, extending from the tips of the outer three fingers almost to the elbows. Smears of various lesions were positive for *B. Hansenii*. Both the blood Wassermann and Kahn reactions were positive.

RHEUMATISM

Among the early complaints of some lepers are pain and swelling of the hands and feet and stiffness and numbness of the extremities. Contraction and distortion of the fingers and toes may also be fairly early manifestations. In the group of 425 patients reviewed here, there were 19 with such symptoms who gave a history of having had their disability primarily diagnosed as "rheumatism" or arthritis and of having been given more or less extensive treatment for such a condition. One of these patients, who had recurrent attacks of chills and fever in addition to painful extremities, was treated for acute rheumatic fever for several months. Another with evanescent tubercles, fever and swollen extremities was treated on several occasions for acute rheumatic fever and erythema nodosum.

CASE NO. 3

A Filipino male, 29 years of age, had lived in this country for 14 years. A paternal uncle in the Philippines was the only leper in his family.

He had had several childhood diseases but denied any venereal disease.

About one year prior to leaving the Philippines, he first noticed that he did not have normal sensation in his right foot. After his arrival in this country, he had pains in the legs and later in the forearms. His feet and hands began to swell, first the right foot, then the other foot, and later both hands. There were a few brown spots on his right leg. At that time a doctor started treating him for "rheumatism." After two years of this treatment his condition was not improved. In the meantime numbness of the feet and hands developed. As the disease progressed, more discolored spots appeared on several parts of his body. During this time he had unsuccessfully consulted other doctors. Finally he attended a clinic in Stockton, California. There his disease was recognized and his case reported to the State Board of Health, and in a few months he was sent to the National Leprosarium at Carville, Louisiana.

Examination upon admission here revealed discrete nodules on the face and both forearms. The outer halves of the eyebrows were scanty. There was a leprous scleroderma or swelling and induration of the lower legs and feet. Areas of anesthesia were found over the feet and legs as high as the knees and over the hands and the ulnar surfaces of the forearms. Skin smears were positive for *M. leprae*. In the serologic survey the Kolmer and Kline reactions were positive but the Kahn test was negative.

NEURITIS

The early neuritic pains of neural leprosy often lead the doctor to treat such a patient for a simple peripheral neuritis. Even after muscular atrophy and contractures of the extremities have developed, the doctor may not think of leprosy. In the group of patients under study, there were at least 10 who had been told that they had neuritis and had been treated for such a condition. One of them received this treatment for a number of years, during which time he saw at least two physicians who made the same diagnosis. Another patient was treated for alcoholic neuritis for over a year before the true nature of his nerve involvement was recognized.

CASE NO. 4

A white male, 76 years of age, after spending 10 years in Brownsville, Texas, moved to the Panhandle, where he had resided for the last 18 years. There was no leprosy in his family. He had had the usual childhood diseases and typhoid fever but denied all venereal infections.

About 15 years ago he first noticed a numbness of the right fourth and fifth toes, together with

an eruption of large tan-colored spots on his body and legs. These spots became lighter and gradually faded away. About four years ago there was a tingling and numbness in his feet. In a few months' time he noticed a numbness in the right middle finger and the left index finger.

He first consulted a doctor about four years ago. This physician told him that he had neuritis. During the last two years the numbness in his feet and hands spread in spite of the treatment he was receiving for neuritis. He then consulted two other physicians; both told him he had neuritis and treated him for that disease. About eight months ago large red spots again appeared on his body, legs, and arms. These gradually turned darker and some of them faded in the center. Another doctor, who was consulted at that time, made the correct diagnosis and started treating him with chaulmoogra oil until the proper arrangements could be made to send him to the Carville Marine Hospital.

Examination upon admission here showed large circinate reddish-brown macules on the external surfaces of the arms and legs and over the back. Those on the back were fading in the center but retained a pigmented infiltrated margin. Definite anesthesia was found over the center of the larger macules and over areas of the hands and feet. There was a slight atrophy of the interosseous muscles of the hands. Smears of the skin lesions and nasal mucosa were positive for *B. Hansenii*. The blood Wassermann and Kahn tests were negative. The diagnosis was maculo-anesthetic leprosy.

SINUSITIS

There were eight patients whose early complaint of chronic nasal catarrh, with obstruction and sometimes epistaxis, had led to their treatment for simple rhinitis or sinusitis. One of them had been subjected to a submucous resection and two others had had tonsillectomies performed without relief.

CASE NO. 5

A male, Chinese, 19 years of age, was born in Oregon but lived in Canton, China, between the ages of four and 12 years. He knew of no family or other contact with leprosy.

Two and a half years ago he first noticed a slowly progressive nasal catarrh. This gradually produced almost complete nasal obstruction and necessitated mouth breathing. A doctor, whom he consulted at that time, informed him he had sinusitis and enlarged tonsils and adenoids. He advised the removal of the tonsils and adenoids. This the patient could not financially afford so he used simple local medications without improvement.

About six months ago a small spot appeared on his left cheek. In another month some spots appeared on his legs. As they did not itch, he paid

little attention to them at first. When they grew larger and became ring-shaped he again sought medical advice. This time a physician treated him for ring-worm. When the skin condition did not improve after months of treatment, smears were taken and a diagnosis of leprosy was made. He was then sent to the National Leprosarium at Carville, Louisiana.

Examination upon admission here showed scattered discrete nodules on the chin, ear lobes, thighs, legs and forearms. There was a large infiltrated erythematous patch on the left cheek. Several circinate macules with infiltrated borders and atrophic anesthetic centers were present on the buttocks, thighs, legs, arms, and forearms. There was anesthesia of the feet and lower legs and diminished pain sensation of the little and index fingers. Smears of the skin lesions were positive for *B. Hansenii*.

TUBERCULOSIS

It is not rare for leprosy patients to complain of general lassitude, weakness, loss of weight, and fever. These symptoms are very suggestive of tuberculosis. In such cases, should an examination of the sputum reveal the presence of an acid-fast organism, it is not surprising that a mistaken diagnosis is made. Such an erroneous diagnosis was made in six of the patients in this study. One of them was treated in a sanatorium for a number of months in spite of a negative x-ray of the chest, until a physician familiar with leprosy recognized the true condition.

Few general practitioners know that acid-fast bacilli are frequently found in the sputum of lepers. Among 243 patients of this group, in whom a single routine sputum examination was done, 93, or 39 per cent, were found positive for acid-fast bacilli (*M. leprae*); thus the finding of acid-fast bacilli in the sputum of persons living where leprosy is endemic is not conclusive evidence that they have pulmonary tuberculosis. The Hansen bacilli in the sputum of lepers no doubt originate from the frequent leprotic lesions in the nasal, laryngeal and buccal mucosa. Only occasionally are these bacilli in the sputum grouped in typical globi formation. Thus the only certain way to prove that they are not tubercle bacilli is through negative culture or negative guinea pig inoculation. It is realized that tuberculosis is a common complication

of leprosy.⁵ This has been proved at autopsies in this hospital in a considerable percentage of cases. During life, pulmonary tuberculosis can best be diagnosed in our patients by physical examination and especially by x-ray films of the lungs. The finding of acid-fast organisms in the sputum of patients in this hospital cannot be used as a means of diagnosing pulmonary tuberculosis. In cases of active or suspected tuberculosis in lepers, when the sputum is positive, the only way to be certain that it is the Koch and not the Hansen bacillus is to resort to cultures or animal inoculations of the sputum. This has been done repeatedly in this institution. In a previous study, Denney⁶ reported on the sputum examination of 210 lepers for acid-fast bacilli. In 99 of these, positive smears were obtained (47 per cent). Culture of the sputum of 75 of those showing acid-fast bacilli yielded a growth of tubercle bacilli in 14 cases, all of whom had clinical pulmonary tuberculosis. Six guinea pigs inoculated with sputum producing acid-fast colonies developed tuberculosis.

CASE NO. 6

A Filipino male, 45 years of age, gave a negative family and contact history of leprosy. He had left the Philippine Islands 12 years ago and had lived in Louisiana for five years. During childhood he had had smallpox, in 1918 influenza, and in 1934 a tonsillectomy.

Within the last few years he had complained of chronic bronchitis and bronchial asthma with shortness of breath. There had been some febrile episodes and a loss of weight. Several months ago he was sent to a hospital for a complete physical examination. During this survey it was found that his sputum was repeatedly positive for acid-fast bacilli. In spite of an inconclusive chest x-ray, a diagnosis of pulmonary tuberculosis was made and he was hospitalized for the treatment of that disease. A visiting physician, familiar with leprosy, saw the patient and, suspecting the correct diagnosis, requested a bacteriologic examination of some skin lesions. These proved positive for *B. Hansenii*, and he was transferred to the U. S. Marine Hospital at Carville, Louisiana.

Examination upon admission showed a few leprous nodules on the face, brow, ears, and limbs. There was a diffuse brownish thickening of the face, forehead, and ears. A widespread thickening of the feet and legs and of the hands was present. Anesthesia could be demonstrated from the toes to

slightly above the knees and from the fingers to the elbows. The ulnar nerves were palpably enlarged and there was atrophy of the interosseous muscles of the hands, with early contraction of the little fingers.

Skin and nasal smears showed the presence of Hansen bacilli. A routine sputum examination showed positive for acid-fast bacilli. Physical examination of the lungs was essentially normal. X-ray films of the chest showed both lung fields to be clear and free from evidence of active tuberculosis. The Wassermann and Kahn tests were negative. A diagnosis of mixed type of leprosy was made, and that of pulmonary tuberculosis was disproved.

MISCELLANEOUS

Less frequently confusing and misdiagnosed than the above major diseases, have been many other diseases. Among them the following are included: eczema, six cases; ringworm, five cases; pellagra, nephritis, and peripheral vascular diseases, three cases each; malaria, two cases; and lupus vulgaris, syringomyelia, and frostbite, one case each.

CASE NO. 7

A white man, aged 52 years, a native of Georgia, was admitted from that state. There was no leprosy in his family or intimate associates. He had had typhoid fever and gonorrhea in early adult life but denied syphilis. He had lived in Cuba in 1898, in Mexico in 1904 and 1905, and in Texas in 1906.

The first manifestations of leprosy, an eruption over his legs and feet, developed 14 years after his leaving Texas. Within a few months, nodules appeared on the face, body, and upper extremities. Numbness of the feet was noted almost from the onset of the disease. He consulted several physicians during the ten years before the correct diagnosis was made. Most of them told him he had an eczema or some other form of chronic skin disease. Various treatments were instituted for the dermatitis, without benefit. He states that he consulted 12 physicians, all of whom were puzzled over his case. One of them even told him he had syphilis and gave him several intravenous injections, which made him worse. Several of the doctors insisted that he should have all of his teeth extracted in the hope that this might help clear up his eczema. He finally consented to this and, although he sacrificed many good teeth, no favorable results followed. Finally he sought medical advice at the U. S. Marine Hospital at Savannah, Georgia, where the diagnosis of leprosy was made and from where he was transferred to the U. S. Marine Hospital at Carville, Louisiana.

Admission examination showed a frank case of lepromatous leprosy, even to a leonine facies. No-

dular lesions were widespread over the face, body, and the extremities. The ulnar nerves were enlarged and there was anesthesia of the hands and lower forearms as well as of the feet and lower legs. Beginning contracture of the little fingers was observed. Small ulcers were present on the fingers and lower parts of the legs. The eyebrows were missing. Skin smears were positive for *M. leprae*. The blood Wassermann and Kahn reactions were positive and negative respectively.

Some patients reported that they had been treated erroneously for two or more diseases before a correct diagnosis was made.

CASE NO. 8

A colored woman, a native and resident of Louisiana, was 36 years of age when admitted to the U. S. Marine Hospital, Carville, Louisiana. Her brother had leprosy before her and one of her two children was to contract it later. She denied having had any of the venereal diseases.

Over four years prior to her admission, she first experienced repeated attacks of chills and fever with general malaise. A doctor at that time treated her for malaria. Several months later she developed pains in the limbs with swelling of the hands and feet. She was then treated by another physician for rheumatism. Her swollen extremities did not improve, and after several months small, raised bumps came out on her face, forearms, and legs. She again had recurrent attacks of fever. A little later her ears became enlarged and nodular. A doctor at that time told her that she had syphilis and gave her several injections in the veins of her arms. Instead of improving, more nodules broke out on her face and extremities. She consulted another doctor who sent her to the Charity Hospital in New Orleans. There the correct diagnosis was made and she was transferred to the Carville Leprosarium.

Upon admission she presented a clear-cut clinical picture of a mixed type of leprosy. Leprotic nodules were sprinkled over the forehead, cheeks, nose, upper lip, and ears. There were also small lepromata on the upper and lower extremities from the wrists to the shoulders and from the ankles to the hips. White patches were scattered over the back and chest. Diminished sensation was present from the tips of the fingers to the wrists and along the ulna surfaces of the forearms. Partial anesthesia over the feet and lower legs was also noted. The little fingers showed an early contraction. Bacterioscopic examination of the lesions were positive for Hansen bacilli. A routine sputum examination was negative for acid-fast bacilli. The blood Wassermann and Kahn reactions, at first negative, became positive as the disease progressed.

The difficulties of the early diagnosis of leprosy are many. In the first place the

physician hesitates to make such a diagnosis, as it means the separation of the patient from his home and family. Sometimes it is the patient who does not seek medical advice when he first observes the signs of the disease. If there are other cases in the family, he may be suspicious about his condition and wish to hide it as long as possible for fear of its confirmation.

If the general practitioners of the Gulf states kept the possibility of this disease in mind, they would recognize it more frequently. Familiarity with the fundamental signs and symptoms of early leprosy would render them better able to diagnose it before it is far advanced. Early diagnosis is important, not only from a prophylactic standpoint, for the welfare of the community, but also from a therapeutic standpoint for the good of the patient. If patients were sent to the National Leprosarium in an earlier stage of the disease than they are at present, more of them would be discharged as arrested, and this would encourage others to seek early treatment.

In the early lepromatous cases with only a few nodules the diagnosis will usually be missed unless one is leprosy-minded since the individual lesions of leprosy are not pathognomonically characteristic.⁷

In frank lepromatous leprosy with multiple and confluent lesions the diagnosis is generally easy. But it must be substantiated by the demonstration of typical acid-fast organisms in smears made from the lesions. Since these bacilli are present in such large numbers and frequently in typical groups, the globi, there can be no doubt of the diagnosis when the proper bacteriologic technic is used. Southern physicians should become familiar with this technic.

BACTERIOLOGIC TECHNIC

An incision is made through the skin at the edge of the lesion. In diffuse infiltrations, the areas of predilection for searching for the Hansen bacillus are the skin of the forehead, cheeks and ear lobes. Compression of the base of the lesion between the thumb and finger, so as to drain it of its blood supply, is a good preliminary pro-

cedure. Care should be taken not to make the incisions so deep as to draw blood from the underlying tissues. Smears are made by scraping the serum or tissue juices from the edges of the incision with the blade of a scalpel. These smears are stained by the regular acid-fast technic of Ziehl-Neelsen.

Thus in lepromatous leprosy the diagnosis is readily confirmed if the disease is suspected. That many physicians do not consider leprosy is the reason so many cases escape early diagnosis and are so frequently treated as syphilis or other diseases. On the other hand, a positive diagnosis of leprosy should never be made in the lepromatous type until bacteriologic confirmation is obtained.

Superficial lymph gland puncture, and nasal septum scrapings are other means of obtaining material for the bacterioscopic diagnosis of leprosy. General practitioners are warned, however, to rely mostly upon properly made skin smears, since tubercle bacilli may occasionally be encountered in lymph nodes and nasal secretions.

In maculo-anesthetic leprosy, the diagnosis is more difficult, since the bacteriologic examination is so often negative. In this type of the disease, a negative laboratory examination does not eliminate leprosy. In such cases reliance must be placed upon the clinical findings.

The typical lesion of maculo-anesthetic leprosy is the lepride, an annular macule with erythematous edges and a depigmented center. The demonstration of a central anesthesia in such a lesion is significant of leprosy. A peripheral zonal distribution of anesthesia of the extremities with muscular atrophy of hands and feet and enlargement of peripheral nerves will assist in making the diagnosis.

The examiner should know the proper method of testing for anesthesia, which includes diminution in touch, pain and thermal sensations. To test for loss of pain sensation, use the point and head of a pin. The patient should close his eyes and say whether he feels the point or head of the pin. To test for loss of touch sensation,

use a wisp of cotton, as it is essential to avoid making any pressure. The patient should close his eyes and say "yes," every time he feels the touch of the cotton. To test for loss of thermal sensation, use two test tubes, one filled with ice-cold water and the other with hot water.

Palpation of the peripheral nerve trunks, particularly the ulnars, for enlargement, induration, and irregularities is important. Look for beginning contractures of the fingers, especially the little finger, and atrophy of the small muscles of the hand. Absorption of the small bones, such as the phalangeals, metatarsals and metacarpals, are also significant of neural leprosy.

Tuberculoid leprosy is the form of the disease which most easily escapes the suspicion of the physician. Such cases have often been misdiagnosed as Böeck's sarcoids or lupus vulgaris. An obstacle to the diagnoses is that the bacteriologic smears are usually negative except in the early lesions. For this reason, biopsies should be taken, which to the experienced leprologist will reveal the suggestive histology. Southern pathologists are urged to become more familiar with the histopathology of this type of leprosy in order to avoid misinterpretation.

CONCLUSION

The plea is again made to the family physician, especially in endemic areas, to think more often of leprosy so as to avoid the common mistake of treating it as another disease until it has reached a far advanced stage.

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ALLERGIC RESPIRATORY DISEASE AND PNEUMONIA IN CHILDHOOD

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It has been estimated from large numbers of cases that about one-third of all asthmatics date the onset of their allergic troubles to the first decade of life. Of these, the majority start before the sixth year.¹

During this period, the clinical manifestations of the disease are often unlike the asthmatic paroxysm seen in the adult. The seizures are likely to be much more insidious. They often begin with nasal symptoms resembling a "cold," and soon develop into cough, shortness of breath or wheezing respiration, vomiting, and fever. If the chest is examined at this phase of the attack, the examiner is very likely to be impressed by the presence of many scattered rales of various types and areas of impaired resonance. These findings, occurring concomitantly with constitutional manifestations of infection, that is, fever and leukocytosis, are conducive to the diagnosis of bronchopneumonia. Although it is a special type of pneumonitis, this pneumopathy is erroneously called pneumonia and treated as such. Its management, prognosis and course are different.

Allergic respiratory disease is not to be confused with the acute infectious types of bronchopulmonary disease, so commonly seen in childhood, which at times produce wheezing respiration. The whistling or wheezy rale is not specific of allergic respiratory disease, being due to any physical factor which will produce narrowing of the air passage. The differentiation of allergic from infectious types of respiratory disease has been discussed freely in the literature. It is the purpose of this paper to point out the nature of the pneumopathy which so

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often complicates allergic respiratory disease or bronchial asthma, particularly in childhood.

A word about the pathogenesis of this phenomenon is important. Pathologically, the allergic reaction consists of "hive formation." An attack of hay fever, allergic bronchitis or asthma, a positive skin test, or allergic urticaria are all pathologically the same in that they represent edema and eosinophil cellular infiltration.² An allergic reaction in that part of the respiratory tract bearing mucous glands is associated with the production of large quantities of mucus. Since the adult is capable of clearing his respiratory tract much more efficiently than the child, his respiratory tree is kept fairly well aerated. On examination, his chest usually reveals dry sibilant wheezing rales. Such a spell of asthma could be called "dry," and is usually relieved by an injection of epinephrin or by the common drugs employed. In contrast, the child often retains these secretions which become inspissated into tenacious plugs. Should the picture become complicated by dehydration, which is easily possible from loss of fluids in vomitus or through the expired air, inspissation of the plugs is even greater, and atelectasis an eventuality.

These atelectatic areas vary in extent from microscopic size to others large enough to involve an entire lobe, depending on the size of the bronchus occluded. The concomitant poor drainage allows the usual organisms which inhabit all respiratory tracts to produce a low-grade pneumonitis distal to the plugs. Areas of impaired resonance, distant breath sounds, bronchial breathing, and moist and dry rales are not uncommonly found on examination of the chest. Temperature of 103° F. or 104° F. is frequently present. X-ray examination will reveal shadows of atelectatic areas and pneumonitis commensurate with the pathology present. The shadows are likely to be very evanescent, since, like allergic inflammation elsewhere, the lesion is usually reversible. At this time epinephrin or ephedrin has no effect, or if so, it is very tran-

sient. Such a spell of asthma could be called "moist" in contradistinction to the "dry" asthma usually seen in the adult. It occurs much more commonly in childhood than adult life.

MANAGEMENT OF ATTACK

Obviously, the management of this attack is unlike the management of infectious pneumonia. Medical aid should be directed toward liberation of the plugs and reduction of the allergic edema. This is accomplished by two procedures.

First, separate the patient and the offending allergen. When the offender is suspected of being an environmental substance (inhalant), sending the patient to a hospital room will usually remove him from contact with the common household allergens. Where the offender is suspected of being some outside air-borne substance, the patient and offender may be separated by the use of an air filter, or by keeping the patient in a room with windows and doors closed. In such a room, the air-borne material will soon gravitate, and the air be relatively free of outside allergens. When the patient and allergen are successfully separated, it is not uncommon to see the whole process subside in 24 to 48 hours without the addition of any other medication than was formerly administered. This sudden change is associated with subsidence of the allergic edema and subsequent liberation of the mucous plugs.

Secondly, correct medication should be employed to aid the process. Attention should be directed to re-hydration. The amount of fluid lost should be roughly estimated and replaced. It may be given by mouth, or parenterally if necessary. Epinephrin, ephedrin-like drugs, or theophyllin-ethylenediamine (aminophyllin), should be given alone or in combination regularly every four to six hours. Of the expectorant drugs available, ipecac seems to be the most promising. This may be associated with its emetic action. It should be given as syrup of ipecac in one or two dram doses until emesis is produced. It is not unusual to see several mucous casts liberated during a vio-

lent seizure of emesis. Where atelectasis involves an entire lobe, and above measures fail, the help of a bronchoscopist may be necessary to aspirate the plugs. Fortunately, this is not often necessary.

With the institution of proper drainage, aeration of the bronchopulmonary tree soon follows. The fever subsides, labored respiration improves, and the abnormal physical signs gradually disappear. It is rarely necessary to employ sulfonamides, and they should certainly not be used until proper drainage is secured. The great majority of these patients are well on the road to recovery within a few hours following proper aeration of the respiratory tree.

CONCLUSIONS

1. The most common pneumopathy complicating an attack of bronchial asthma in childhood is not pneumonia in the usual sense of the word, but atelectasis produced by allergic edema and mucous plugs. This phenomenon occurs in adults also, but is much more common in childhood.

2. Secondary infection caused by organisms of low virulence occurs distal to the plugs. This is responsible for the constitutional manifestations of infection that ensue. The prognosis of the attack is good. Practically all patients recover from the individual attack. Recurrences are common, however.

3. Proper management consists of methods directed toward obtaining proper drainage and ventilation of the respiratory tree.

4. Sulfonamide chemotherapy is rarely necessary and is only indicated when the element of infection continues after proper drainage is instituted. The sulfonamides do not produce the characteristic response if given to these patients.

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VENEREAL DISEASES AMONG SELECTEES AND VOLUNTEERS IN LOUISIANA*

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In October of 1940, with the advent of the Selective Training and Service Act, arrangements were made at the request of the War Department for the Louisiana State Health Department Laboratories to perform serologic tests for syphilis on all individuals examined by the Medical Examiner of the Local Selective Service Board. In this state 94 local Selective Boards were established with medical officers to examine both selectees from the National Lottery and individuals who volunteered under provisions of this Act. In addition, there were nine Medical Advisory Boards established for consultation and review purposes. Volunteers for enlistment in the regular Army were examined directly by the Army Medical Corps and are not included.

The local boards began medical examinations about the middle of November 1940. Blood for serologic tests for syphilis was drawn by the local board at the examination and was forwarded to the State Health Department Laboratory. The results of the test were reported in triplicate (see figure 1), the copies being distributed as follows: One copy to the local draft board medical examiner, one copy to the State Health Department, and one copy to the U. S. Public Health Service. In the absence of clinical findings diagnostic of syphilis, a positive or doubtful serologic test was followed routinely by a recent specimen or specimens, and the diagnosis of syphilis was based on confirmed positive serologic test, or a test which was repeatedly doubtful.

The data forming the basis of this report were assembled by the U. S. Public Health

*Read before the Orleans Parish Medical Society, December 8, 1941.

†From the Louisiana State Department of Health, New Orleans, Louisiana.

FIGURE 1

RECORD FORM				
DIVISION OF VENEREAL DISEASES, LOUISIANA STATE HEALTH DEPT. IN COOPERATION WITH U. S. PUBLIC HEALTH SERVICE				
1. Order No.....	Local Board.....		State, Louisiana	
(From "Notice to Appear before Local Board" DSS Form 60)				
2. Date specimen drawn.....				
3.	(Last name)	(First name)	(Middle name)	
4.	Permanent address: (Street or P. O. box) (Town or city) (County) (State)			Urban <input type="checkbox"/> Rural <input type="checkbox"/>
5. Birth date	(Month)	(Day)	(Year)	Race.....
6. Suspicious open lesions: Primary <input type="checkbox"/> Secondary <input type="checkbox"/>				
7. GC discharge: Yes <input type="checkbox"/> No <input type="checkbox"/> Smear: Pos. <input type="checkbox"/> Neg. <input type="checkbox"/> Taken but not yet examined <input type="checkbox"/>				
Not done <input type="checkbox"/>				
				....., M. D. Examining Physician.
LABORATORY REPORT OF SEROLOGIC BLOOD TEST				
8. Lab. specimen No.....				Specimen
	Neg.	Pos.	Doubt.	unsatisfactory
9. Name of test.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10.	(Name and address of laboratory)			Laboratory Director.
(TO STATE DEPT.)	Date of Report.....			16-18064

Service and shortly after September 1, 1941, when the results of examinations on the first two million selectees and volunteers had accumulated, detailed tabulations were made, giving the results of examinations by age group, race, place of residence—both political subdivision and whether urban or rural. These tabulations for Louisiana were based on 48,459 individuals examined during the first ten months of operation of the Selective Service Act. Of these, 547 had no clinical entry nor laboratory tests for syphilis, leaving 47,912 individuals about whom there was information as to the presence or absence of syphilis. Of these only four had no blood tests made (see table 1).

In the analysis of the data it was found, as expected, that the individuals in the older age group had a higher prevalence rate and

TABLE 1
RESULTS OF SEROLOGIC TESTS FOR SYPHILIS
AMONG 48,459 SELECTEES AND VOLUNTEERS
EXAMINED BY SELECTIVE SERVICE
BOARDS IN LOUISIANA

	—Age Given— White	Non- White	Age Missing	Data Total
Early lesions				
Primary sero neg.	25	21	2	48
Primary sero pos.	1	20	2	23
Primary sero doubtful....	0	4	0	4
Secondary sero pos.	3	17	2	22
Secondary sero doubtful..	0	2	0	2
No STS done.....	3	1	0	4
No demonstrable lesions				
Serology positive	644	4,318	381	5,343
Serology doubtful	117	346	41	504
Total syphilis	793	4,729	428	5,950
Apparently non-syphilitic—				
Serology negative	25,035	15,498	1,429	41,962
Total examined	25,828	20,227	1,857	47,912
No data	261	264	22	547
Total	26,089	20,491	1,879	48,459
Syphilis prevalence per 1,000	30.7	233.8	230.5	124.2

also that the negro had higher rates throughout than the white (table 2). The rate for the white race began at 12.7 per 1,000 in the age group, 18-20, and increased to 87.3 in the age group, 36-40, while in the

The data were also divided to give the prevalence of syphilis among selectees and volunteers. This information was corrected for differences in age grouping and it was found that the volunteers had only a

TABLE 2
PREVALENCE OF SYPHILIS BY AGE AND COLOR IN 46,055 SELECTEES AND VOLUNTEERS IN LOUISIANA

Age Group	White			Colored			Other			Total		
	No. Exam.	No. Syphilis	Rate per 1,000	No. Exam.	No. Syphilis	Rate per 1,000	No. Exam.	No. Syphilis	Rate per 1,000	No. Exam.	No. Syphilis	Rate per 1,000
18-20.....	711	9	12.7	2,502	275	109.9	62	6	96.8	3,275	290	88.5
21-25.....	14,439	286	19.8	8,844	1,721	194.6	459	35	76.3	23,742	2,042	86.0
26-30.....	6,887	263	38.2	4,777	1,425	298.3	244	27	110.7	11,908	1,715	144.0
31-35.....	3,562	215	60.4	3,008	1,124	373.7	131	31	236.6	6,701	1,370	204.4
36-40.....	229	20	87.3	192	83	432.3	8	2	*	429	105	244.8
Total.....	25,828	793	30.7	19,323	4,628	239.5	904	101	111.7	46,055	5,522	119.9

*Sample too small for reliable conclusion.

colored the rates began at 109.9 per 1,000 in the age group, 18-20, and increased to 432.2 per 1,000 in the age group, 36-40.

Over-all age groups just over 3 per cent of the white and just under 24 per cent of the colored were found to have syphilis.

It was found that in the crude figures for both white and colored the rates for individuals drawn from urban areas were higher than for those coming from the rural parts of the state. In order to make direct comparison and to correct for the differences in the age grouping in these various groups, the rates were corrected for age and the results are portrayed in table 3.

TABLE 3
PREVALENCE OF SYPHILIS AMONG SELECTEES AND VOLUNTEERS—CORRECTED FOR AGE*

	Urban		Rural	
	No. Exam.	Rate per 1,000	No. Exam.	Rate per 1,000
White	12,535	42.7	12,217	31.0
Colored	9,071	310.3	7,471	247.1
Total	21,606	136.4	19,688	106.6

*The standard population used was estimated from age group given by U. S. Census Bureau 1940 population for Louisiana; distributed in the exclusive age groups 21-35, as follows: white; age 21-25, 24.8 per cent; age 26-30, 22.4 per cent; age 31-35, 17.7 per cent; colored: 21-25, 12.9 per cent; age 26-30, 11.4 per cent; age 31-35, 10.8 per cent.

In the rural areas syphilis was found to be only 72.6 per cent as prevalent as in the urban areas in the white, and 79.6 per cent in the colored,—an over-all rate in the rural areas of 78.2 of that of the urban areas.

slightly lower prevalence rate than did the selectees (see table 4).

TABLE 4
PREVALENCE OF SYPHILIS IN SELECTEES AND VOLUNTEERS—CORRECTED FOR AGE*

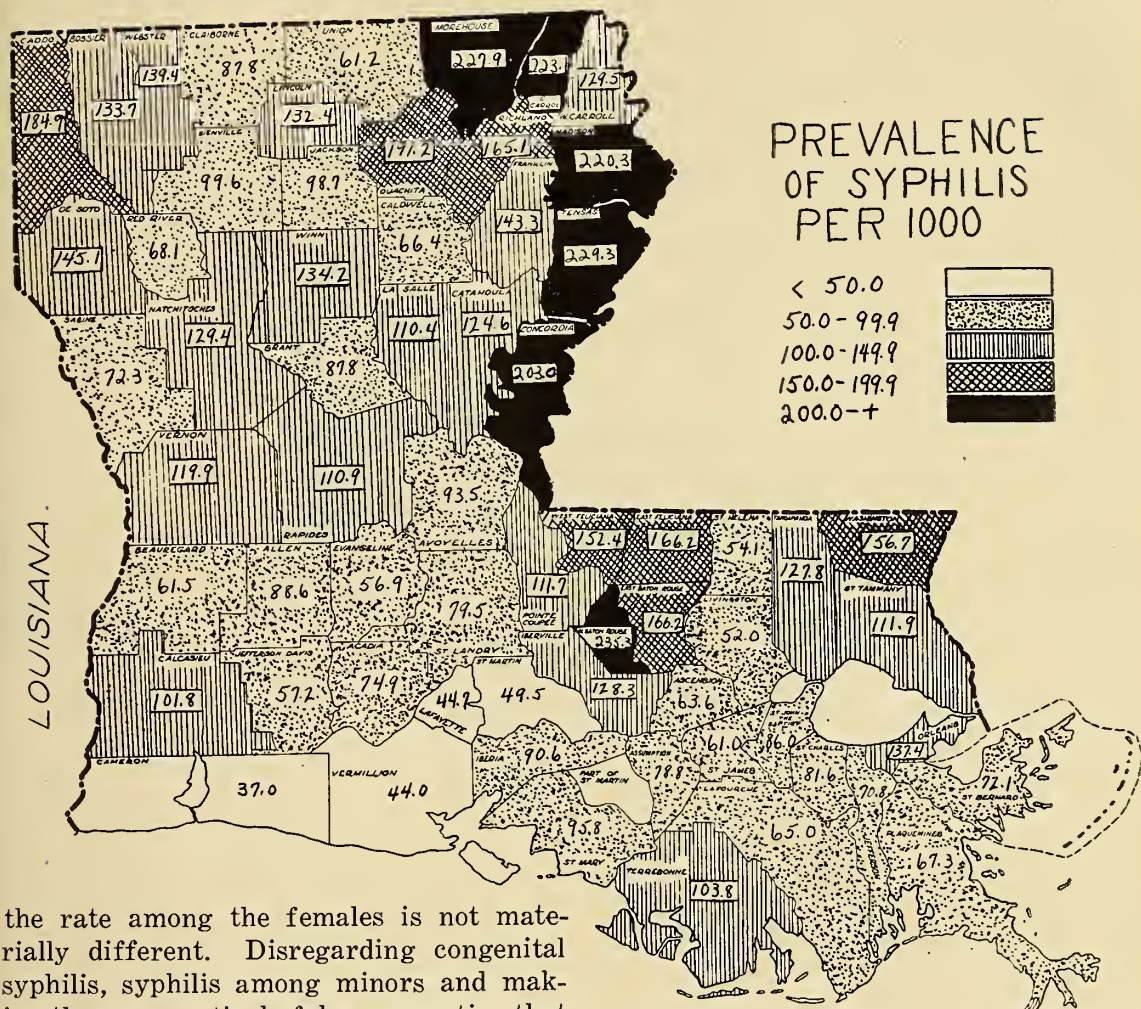
	Volunteers		Selectees	
	No. Exam.	Rate per 1,000	No. Exam.	Rate per 1,000
White ..	2,227	31.1	22,525	37.8
Colored	3,130	288.7	13,412	283.1
Total	5,357	121.5	35,937	123.9

*The standard population used was estimated from age group given by U. S. Census Bureau 1940 population for Louisiana; distributed in the exclusive age groups 21-35, as follows: white; age 21-25, 24.8 per cent; age 26-30, 22.4 per cent; age 31-35, 17.7 per cent; colored: age 21-25, 12.9 per cent; age 26-30, 11.4 per cent; age 31-35, 10.8 per cent.

Figure 2 portrays graphically the distribution of syphilis in the Louisiana parishes. The rates range from a high of 235.3 per 1,000 in West Baton Rouge Parish to a low of 37.0 per 1,000 in Cameron Parish. These are crude figures and are not corrected for differences in color and age distribution, because such a breakdown would result in too small numbers in age and color specific classes. It is undoubtedly true that differences in color and age distribution account for the major part of the differences, yet these figures do represent the actual conditions existing in the individual parishes.

The most striking thing revealed by these tabulations is the extremely high prevalence of syphilis in Louisiana in the male population. It can reasonably be concluded that

Figure 2



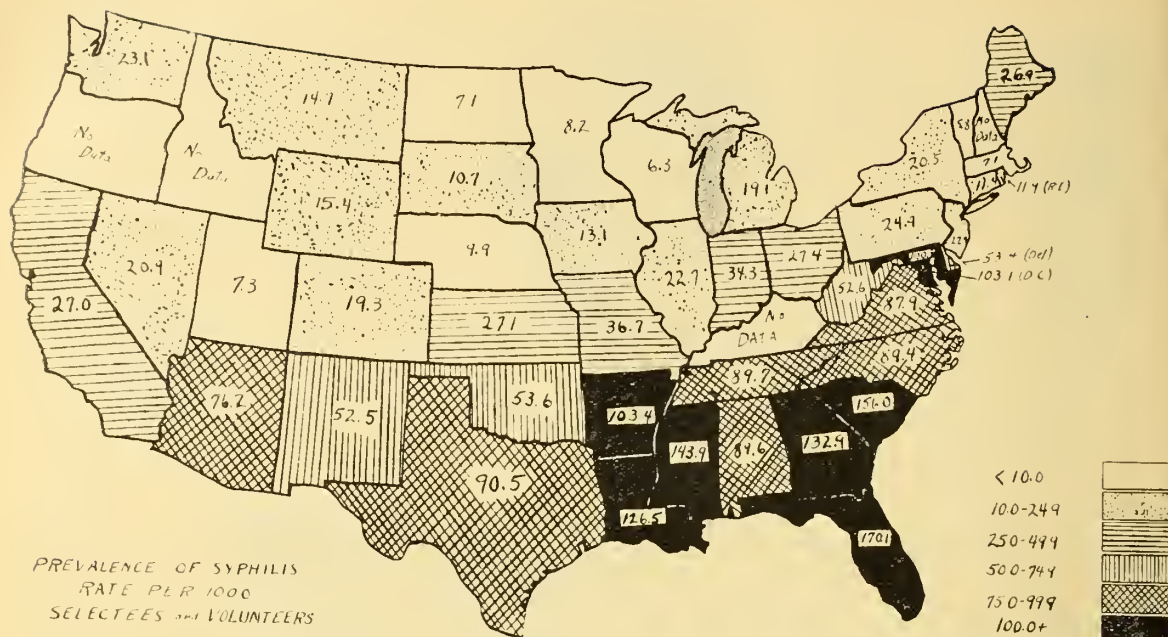
For purposes of comparison figure 3 represents the uncorrected rates by states. These rates are based on the first million selectees and volunteers examined in the nation.¹ It will be noted that the rates range from a low of 5.8 per 1,000 in New Hampshire to a high of 170.1 per 1,000 in Florida.

whites*, Florida (46.8 per 1,000) and South Carolina (43.9 per 1,000) were high, while for the colored, Florida (401.8 per 1,000) and New Mexico (364.3 per 1,000) were high. Only Florida, South Carolina, Mississippi and Georgia exceed Louisiana in relative severity of their syphilis problems.

GONORRHEA

*Excludes Arizona (50.5 per 1000) and New Mexico (44.0 per 1000) and Texas (42.6 per 1000) because of the complication of classification of Spanish American as white.

Figure 3



nosed, of which 318 had discharge and 29 were diagnosed on the basis of a positive smear in the absence of discharge.

If it is assumed that all of the 38,475 cases having no entry as to presence or absence of gonorrhea were not infected, there were 347 cases of gonorrhea among the 48,549 individuals examined—or 7.1 per 1,000. This must be considered an absolute minimum figure.

With the rapidly expanding use of sulfonamide drugs in the therapy of gonorrhea, it is believed that the average uncomplicated case of gonorrhea is demonstrable for no longer than 15 days in the type of examination employed here. During a year's time then, the experience of such a group would be nearly 24 times the observed minimum rate of 7.1 per 1,000, or about 168 per 1,000.

SUMMARY

An analysis of the venereal diseases found among the first 48,459 Louisiana selectees and volunteers examined under the provisions of the Selective Training and Service Act of 1940, disclosed that syphilis was diagnosed in 3.07 per cent of the white and 23.95 per cent of the colored. Gonorrhea was discovered in 0.71 per cent of those examined. Louisiana stands fifth in

the nation in the severity of its venereal disease problem.

REFERENCE

1. Vonderlehr, R. A., and Usilton, L. J.: Syphilis among selectees and volunteers, *J. A. M. A.*, 117:1350, 1941.

DISCUSSION

Dr. Eugene B. Vickery (New Orleans): I think we have all enjoyed Dr. Onstott's presentation. With the figures he has furnished us of the accurate Wassermann and gonorrheal survey in the selective service organization, the high incidence of venereal disease is again called to our attention. From many standpoints this is a serious problem for the people of this country and state. Its solution lies in adequate education, legislation and treatment of those individuals who are infected with these entirely unnecessary diseases. While the treatment of venereal disease is fairly well standardized, the greatest problem is to bring infected individuals under treatment. This calls for much greater organized effort than previously put forth.

Dr. John H. Musser (New Orleans): I think that Dr. Onstott's figures speak for themselves. It is really astounding the number of people in this state of ours who have positive Wassermanns. Bear in mind, if you will, and as pointed out, it is true that a large proportion of the people who are syphilitic are negroes but in the breakdown of his figures, Dr. Onstott shows very definitely that our rate is so high as to be six times greater in the white population than it is in many states in the north and middle west.

I think that we are wont to look upon the efforts made at the present time to combat syphilis as an

effort which is in a very goodly part taken from the moral point of view. I think that is a mistake. I think we should consider the whole problem not as one of morals, proper living, or what you will, but as one that has to do very definitely with the health of the younger people of this country. When you stop to analyze those figures again you will see how the incidence of syphilis rises to such an extent as to be almost unbelievable in the age group between thirty and forty. You, as physicians, will realize and appreciate that the people who have syphilis are the people who are going to die of cardiovascular disorders of some type, or going to have locomotor ataxia or even may have other expressions of disease dependent upon lues. I think you will see that it is not a question of morality but a question of public health entirely. I think that we, as physicians, should ponder upon what has been said tonight and to the best of our ability back the campaign which is being conducted throughout the country to overcome this disease.

It is said that in the last war that more men were invalidated as a result of venereal disease than invalidated as a result of wounds in battle, and the man loss was almost incomprehensible. I think that same thing should not be permitted to apply to the present time. We have been thrown all of a sudden, and I think to many of us unexpectedly, into a war with another great power and we can not afford to have our young soldiers sitting on the sidelines for treatment of a preventable disease, invalidated because of venereal disease. We can not afford to lose such a large proportion of man power as a result of this type of infection. When you think that the draft lists are practically exhausted at the present time and we have only a little better than a million men in the army, you can realize either the standards are too high in the examination of draftees or there is some reason why these men are put aside, kept out of service; and the reason why is because most

of these causes of rejection are preventable and in that list, of course, comes syphilis. It is preventable at the onset by the proper prophylactic measures and it is curable early with proper therapy. I think we must realize and face the fact that this problem is such a definite one and it may actually become a problem sufficiently severe so that our war efforts will be unavailing and that we must endorse heartily the campaign to eradicate syphilis, the campaign to get rid of prostitutes or whatever may be the campaigns being carried on at this time, we must do our best to help out those who are working for these purposes.

Dr. N. F. Thiberge (New Orleans): I would like to ask the essayist what rule is followed in the Draft Board in excluding the draftees who have syphilis. Are all those with positive Wassermanns excluded or only those in the contagious phase?

Dr. Onstott (in closing): This is a question which received considerable attention at the time the law was drawn up. Many arguments were presented for the induction of individuals with gonorrhea and with latent syphilis, who had a defined minimum of treatment, and in whom the army could itself complete treatment in a short period of time. The War Department was adamant, however, and would not permit the inducting of anyone diagnosed as having syphilis or gonorrhea. In gonorrhea the individual is deferred for a temporary period and then comes back for re-examination and if free of disease is then inducted. This throws an enormous burden of venereal disease back on the medical profession and health authorities to see that these men receive adequate treatment and are rehabilitated for military duty. It likewise fixes a definite responsibility on the Army to see that the selectees who are inducted and completely free of venereal disease remain so.

NEW ORLEANS Medical and Surgical Journal

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1430 Tulane Avenue

*Resigned August, 1941.

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STATE MEDICINE

The physician who is opposed to state medicine, and most physicians are decidedly against Federal care of the sick, must be continuously on the alert to watch out that under the guise of the emergency or under the aegis of war, some plan will be introduced in Congress or possibly by an executive order which will destroy medicine as it exists today. An excellent example of one of the things that the Social Security

social workers are planning to put over has to do with a tax of 1 per cent on payrolls which will then allow some \$3 a day towards hospitalization cost for workers and their dependents. As Dr. Van Etten, a former president of the American Medical Association, points out—such a plan would not only provide poor medical service but would stimulate broad scale malingering and there would arise an enormous extension of administrative bureaus. He likens this plan to a “plunge into compulsory sickness insurance under a new title and another move into totalitarianism of the European kind.” It would appear to the thinker that if this Social Security program, which does not provide for adequacy of hospital service, which will not meet hospital expenses, which will lower medical service, which will require greatly increased hospital facilities and which plan is based on European rather than American experience, would mean a tremendous disruption, almost a destruction of voluntary medical service plans, would ruin the voluntary hospitals and destroy the private practice of medicine. In every way, form and manner it should be fought vigorously and intelligently.

It certainly is unfortunate at the present moment when taxes and Governmental expenses have reached a peak which never before has been attained in the history of the United States, that every one, under the guise of national defense, should attempt to get money from the Government. The physicians seem to be the one exception to this general wide front attack on the Federal treasury. For example, in order to accelerate the training of medical students, nearly every college in the United States has agreed to get the students through in three years, at a cost which will materially increase the expenses of teaching and which financially may be a handicap to the student or to his parent who must budget the cost of his son's medical education for a three year period rather than for a four year period. It has been suggested that the student be aided by loan funds or by scholarships and the suggestion has been brought forth very definitely that such funds should

be obtained from the Federal Government because of the need for young doctors for medical defense. When this scheme to obtain Federal aid was suggested at the recent Congress on Medical Education and Licensure in Chicago, the proposal was almost unanimously considered to be poorly conceived. It was felt that if the Federal funds were given for this purpose, in a very short time the Washington Government would attempt to control medical education and that bureaucratic overlords would be placed over the independent private schools who would dictate what should be taught, how it should be taught and when it should be taught, without a knowledge of any of the primary essentials of a well rounded medical school course. Furthermore, if this were done with the medical schools it would be only a step further in attempting to control and to lead the medical profession in other ways.

Again it is reiterated that at a time now when we are fighting for the future of American democracy it is an outrage that so-called plans of social betterment or what not should be evoked in the name of defense. The United States of America has enough on its hands at the present time to defend its shores, let alone to take on new, untried or half-baked experiments.

MEDICAL CARE IN WAR

Lest it may be contended that these pages contain too much concerning the war, let it be said that at the present moment there is no more important phase of life than war in the lives of the citizens of the United States and medical men in this country. Every endeavor should be made in these war times to submerge all other interests in the common good and common welfare. If the war cannot be won it will be the ruination of the people of this country and particularly the physicians who have evolved a method of practice which is quite contrary to totalitarian forms of government. It behooves each and every one of us physicians to do our utmost to win the war. The medical profession has never failed in times of war to do what is right and proper.

In the last war there were over thirty-three thousand doctors from civil life in an army of some six and a half million men. At the present time there are some fourteen thousand physicians in the army, which number will have to be increased in a very short time by at least ten thousand additional doctors. Their departure will leave tremendous holes in the fabric of civil population. The civilians must receive medical care and it must be done by many fewer physicians than are now engaged in the practice of medicine.

The Procurement and Assignment Services through the state chairmen, in the instance of Louisiana it being Dr. C. G. Cole, are attempting to see that doctors are supplied not only to the Army but that communities will have adequate medical care and that the various defense programs in industry will not lack physicians. Already in some states the set up has been practically completed. In other states for various reasons the program has fallen far behind.

The physician who, on account of physical disability or on account of age, cannot get into the Army, will have a tremendous responsibility thrown upon his shoulders. He will have to do a greater amount of work probably than he has ever done before. The physician in a smaller community must not feel that his time should be devoted entirely to the care of the sick. There are certain definite defense plans which will have to be consummated. One of the secrets, it is said, of the success of England in adjusting herself so satisfactorily to war conditions is because the country is set up in small units; each one is a self-contained organization in which the physician is in most instances the important agent. In these small units have been set up casualty stations and ambulance corps while hospital arrangements have been made for the care of sick or wounded. These smaller units are functioning excellently. These should prove a model to the smaller towns and villages in the United States. Because a doctor in the community is usually the outstanding citizen on him will fall the burden of making many arrangements, far removed from his usual

peacetime activities. He will have to lead and he will have to guide. The leadership cannot be a phone leadership; results will be accomplished not by telephoning to Baton Rouge or Washington but by self-sufficiency, self-reliance and self-dependence.

CHEMOTHERAPEUSIS OF BACTERIAL MENINGITIS

The sulfonamide drugs have profoundly affected the treatment of disease conditions due to bacteria. It is said that at Pearl Harbor the war wounds inflicted on the fateful seventh day of December, very promptly yielded to sulfonamide treatment so that within ten days or two weeks infected wounds were virtually non-existent, a tremendous contrast to the experiences of the last war. In the treatment of specific bacterial disease entities, the results have been spectacular, particularly in the management of patients with pneumonia and in patients who suffer from meningitis. A comment in the *New Yorker* illustrates how widespread is the knowledge of the decreased mortality from infectious diseases. A gentleman addressed a glum faced undertaker—he asked him the cause of his glumness and the answer was, “business is bad—sulfanilamide.”

In the treatment of meningococcic meningitis it has been found that sulfathiazole and sulfapyridine alone have given better results than the treatment of the patient with antiserum and chemotherapeutic agents. Figures have been published which show that in pre-sulfonamide days the fatality per cent of meningococcic meningitis has been as high as 45 and in some places even higher, whereas the results with sulfathiazole alone in a small series of cases, 70, the fatality was only 4.3 and in a larger series of cases when sulfapyridine was given alone, of 384 patients only 23 died, a death rate of slightly less than 6 per cent. Of course it must be borne in mind that these drugs have been used alone in most instances when the disease has not been overwhelming and when the patient has not shown a failure to recover promptly. In other words, in more serious cases when

the sulfonamide therapy has not been efficacious the patients have also been given type-specific antiserum or antitoxin. The concept of no longer using spinal drainage in treating meningitis has become widespread and this method of giving specific serum into the spinal canal has been almost completely swept away in the light of the newer knowledge concerning the treatment of the disease. Another new development in the use of sulfonamide preparations is to give them prior to an operation which might be followed by meningitis. In other words, the operator on the paranasal sinuses, mastoids or the middle ear, gives sulfanilamide one or two days preceding operation in order to prevent meningitis. It is also customary to give sulfanilamide when there is fracture of the base of the skull in order to kill off bacteria which may contaminate the meninges.

In the active treatment of meningococcic meningitis preliminary puncture of the spinal canal is done for diagnostic purposes. Depending upon the type of organism found present will be the selection of a sulfonamide preparation. The literature would show that sulfathiazole and sulfapyridine and possibly sulfadiazine are the most successful in the treatment of meningococcic meningitis; sulfanilamide in streptococcic meningitis; sulfapyridine and sulfadiazine in the pneumococcic type of the disease; sulfanilamide in influenzal meningitis, and sulfapyridine and sulfadiazine in staphylococcic involvement of the meninges. Large doses of the drug should be started promptly and continued until the patient makes a clinical recovery, as guided by the temperature chart, and late in the course of the disease, spinal puncture. Especially is it to be emphasized that the drug is to be given early in large doses and no halfway measures taken. Unsuccessful treatment has resulted time and again from hesitancy in giving the drug in ample amounts and then later on increasing the dose, by which time exudate may hinder the passage of the drug freely into the cerebrospinal fluid, or there is the formation of substances, proteolytic in nature, which inhibit the action of the

sulfonamides. On account of the danger of kidney blockage, an equal part, gram for gram, of sodium bicarbonate should be given with the sulfapyridine or sulfathiazole. The dose of sulfapyridine or sulfathiazole on the first day should be 9 grams for adults, with a proper proportionate reduction for the child or infant, and thereafter 6 grams a day. Inability to take the drug by mouth is an indication to give the drug parenterally.

It may be necessary to do lumbar puncture in the more severe types of meningitis in order to relieve the symptoms of increased intracranial pressure and also to withdraw from the spinal canal the sulfanilamide inhibiting agents. This is a matter for clinical judgment and no hard and fast rule can be laid down.

In the management of meningitis due to pneumococcus and *Haemophilus influenzae*,

both of which have been in the past almost invariably fatal, the sulfonamides should be supplemented by type-specific serum. The new rabbit antiserum is used intravenously in the treatment of influenzal type of meningitis plus the sulfonamides. In the pneumococcic cases it is advisable to use the antitoxin intravenously, or the specific serum, together with the appropriate sulfonamide preparation.

Sulfanilamide therapy is never free from danger but in meningitis there exists an infection which is so fatal that desperate measures must be taken. Agranulocytosis and anuria are the only toxic expressions of sulfonamide therapy which would require the stoppage of the drug. It goes without saying that measures other than administering chemical agents must also be taken, such as adequate fluid intake, possibly small transfusions, ample calories and careful nursing.

—o—

HOSPITAL STAFF TRANSACTIONS AND CLINICAL MEETINGS

CHARITY HOSPITAL

New Orleans

The regular monthly meeting of the medical section of Charity Hospital Visiting Staff was held on Tuesday, February 17, in the auditorium of the hospital. The scientific program consisted of a presentation by Dr. Grace A. Goldsmith of a patient who exhibited "An Unusual Blood Dyscrasia." Dr. M. E. St. Martin gave a case report of "Renal Failure in Diabetic Coma." The last presentation on the program was that of Dr. Norton W. Voorhies entitled "Alkaligenes Fecalis Bacteriemia—Case Report."

J. T. NIX CLINIC

New Orleans

At a staff meeting of the J. T. Nix Clinic in February, 1942, the following article by James T. Nix, Jr., M. D., and Rosary Nix, M. A., was presented. The cases cited were attended by the staff of the Clinic.

PNEUMATIC COLOSTOMY PLUG

A pneumatic colostomy plug, based on the Bardex balloon catheter, is recommended for permanent and temporary colostomies, to be used especially during the day when the patient is active. The Bardex balloon catheter was originally designed for retention enemas.

Method of Application: The Bardex balloon catheter, ligated with twine at the tip, is inserted into the colostomy opening. The balloon is inflated with 30 c. c. of air and by means of a slight traction drawn up to occlude the stoma. A few thicknesses of plain dry gauze are placed around the catheter on the skin of the abdominal wall. A rubber ring about three inches in diameter and an abdominal binder maintain the catheter in place and prevent its extrusion by peristalsis. The rubber ring can be quickly and easily made from a piece of sheet rubber one-fourth of an inch in thickness.

For colostomies with small stomas, an improvised plug is made by passing a No. 16 French catheter into a finger cot and tying the open end of the finger cot around the catheter about one and one-half inches from the tip. In order to tie the finger cot tightly without compressing the lumen of the catheter, a narrow tube of brass about three-eighths of an inch long is inserted into the catheter at the site of the tie. Vulcanizing, of course, would be preferable but entails much time, trouble and expense.

Conclusion: The pneumatic colostomy plug is not a panacea but merely an adjunct to diet and irrigation. Changes in its design are now being perfected.

CASE NO. 1

M. H., was a white male, 41 years of age, who had arrested pulmonary tuberculosis, multiple tu-

berculous fistulae in ano, recurring perirectal and peri-anal abscesses, septic temperature for one year.

Operation: Devine colostomy, July 29, 1941; site of incision: longitudinal incision above umbilicus, two inches to the left of median line.

Result: Drainage from sinuses has almost entirely disappeared. Patient has gained 25 pounds; his temperature has been normal for three months.

Apparatus: Pneumatic colostomy plug (Bardex balloon catheter) has given complete satisfaction and control. Colostomy bag, pad and other devices were employed unsatisfactorily.

CASE NO. 2

M. A., was a white female, 63 years of age, who had acute intestinal obstruction, cause undetermined.

Operation: Exploratory laparotomy, colostomy above obstruction, July 30, 1941; size and site of incision: midline incision above umbilicus four inches in length.

Result: Restoration of health.

Apparatus: Pneumatic colostomy plug improvised from finger cot has given complete satisfaction and control. Colostomy bag, pad and other devices were employed unsatisfactorily.

TRANSACTIONS OF ORLEANS PARISH MEDICAL SOCIETY

CALENDAR

March 2. New Orleans Graduate Medical Assembly.

March 3. New Orleans Graduate Medical Assembly.

Eye, Ear, Nose and Throat Staff, p. m.

Clinico-pathologic Conference, Charity Hospital Morgue Amphitheater, 1:30 p. m.

Hutchinson Memorial Clinic Staff, 8 p. m.

Mercy Hospital Staff, 8 p. m.

March 5. Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.

Joint Scientific Meeting Orleans Parish Medical Society with the New Orleans Graduate Medical Assembly, Hutchinson Auditorium, 8 p. m.

March 6. Board of Directors, Orleans Parish Medical Society, 8 p. m.

March 9. Orleans Parish Medical Society, 8 p. m.

March 11. Clinico-pathologic Conference, Charity Hospital Morgue Amphitheater, 1:30 p. m.

Touro Infirmary Staff, 8 p. m.

Woman's Auxiliary, Orleans Parish Medical Society, Orleans Club, 3 p. m.

March 16. Hotel Dieu Staff, 8 p. m.

Clinico-pathologic Conference, Baptist Hospital, 8 p. m.

March 17. Charity Hospital Medical Staff, 8 p. m.

March 18. Clinico-pathologic Conference, Charity Hospital Morgue Amphitheater, 1:30 p. m.

Charity Hospital Surgical Staff, 8 p. m.

Clinico-pathologic Conference, Hotel Dieu, 8:15 p. m.

March 19. Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.

March 20. I. C. R. R. Hospital Staff, 12:30 p. m.
New Orleans Hospital and Dispensary for Women and Children Staff, 8 p. m.

March 24. Baptist Hospital Staff, 8 p. m.

March 25. Clinico-pathologic Conference, Charity Hospital Morgue Amphitheater, 1:30 p. m.

French Hospital Staff, 8 p. m.

March 26. Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.

March 27. L. S. U. Faculty Club, 8 p. m.

During the month of February the Society held one regular scientific meeting. The program was as follows:

SYMPOSIUM ON ANESTHESIA

- a. Choice of Anesthesia—By Dr. John Adriani.
- b. Anesthesia in Heart Disease—By Dr. Willard R. Wirth.
- c. Anesthesia in Obstetrics—By Dr. Merrill C. Beck.

NEWS ITEMS

Dr. Jules Myron Davidson was recently reelected District Deputy Grand Consul of Phi Delta Epsilon Fraternity.

Dr. H. J. Schattenberg was recently elected to fellowship in the American College of Physicians.

Dr. John M. Whitney was elected to the board of directors of the Kiwanis Club at a recent meeting of this organization.

At the annual installation meeting of the Hotel Dieu, held January 19, the following officers were installed: Dr. H. Theodore Simon, president; Dr. George Taquino, vice-president; Dr. John G. Men-

ville, secretary; Drs. Lucy Scott Hill, O. C. Cassegrain, Frank Chetta, L. A. Fortier, Carlos J. Tripoli, Sidney L. Charbonnet, Jr., and Daniel J. Murphy, additional members to the board.

Drs. W. A. Wagner, H. F. Brewster and John T. Crebbin were recently elected members of the executive committee of the Eye, Ear, Nose and Throat Hospital.

TREASURER'S REPORT

Bank Balance, December 31, 1941.....	\$5,750.03
January Credits	4,170.51
Total Credits	\$9,920.54
January Expenditures	\$2,383.80

Actual Book Balance, January 31, 1942. \$7,536.74
Edwin L. Zander, Secretary

LOUISIANA STATE MEDICAL SOCIETY NEWS

CALENDAR

PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
East Baton Rouge	Second Wednesday of every month	Baton Rouge
Morehouse	Second Tuesday of every month	Bastrop
Orleans	Second Monday of every month	New Orleans
Ouachita	First Thursday of every month	Monroe
Rapides	First Monday of every month	Alexandria
Sabine	First Wednesday of every month	
Second District	Third Thursday of every month	

IMPORTANCE OF THE 1942 ANNUAL MEETING

The Annual Meeting of the Louisiana State Medical Society is of unusual importance to the entire membership this year. Due to the present national emergency the organization is confronted with more momentous problems than ever before and therefore the House of Delegates will have before them matters of very unusual importance and matters calling for collective judgment of those best acquainted with these subjects. The State Medical Society is truly a democratic organization and the desires and purposes of the individual members are expressed by the representatives of the various component societies, in the House of Delegates. In view of these facts it is essential that delegates be elected and information concerning such election be sent to the office of the secretary-treasurer immediately so that appropriate credentials may be furnished for the delegates.

The scientific program, from all indications, will be very worthwhile and there will be several outstanding out-of-state speakers on the program in addition to presentations by some of our most capable members. Your approval or disapproval of this program is best evidenced by your attendance.

Many scientific exhibits have been secured from members of the Society and doctors who have not yet made application for space are asked to do so at once.

The commercial houses which have had exhibits at the meetings in past years have been most loyal in applying for space for the meeting this year and interest and appreciation should be shown these firms by our entire organization.

A synopsis of the program will be carried in the April issue of the Journal.

The Orleans Parish Medical Society, host to the 1942 meeting, has been very active in making plans for this convention and you are assured of a meeting which will prove very beneficial from a scientific viewpoint and socially most enjoyable.

AMERICAN COLLEGE OF SURGEONS TO MEET IN CHICAGO

Because of the war, the thirty-second annual Clinical Congress of the American College of Surgeons will be held in Chicago, October 19-23, instead of in Los Angeles as originally planned. Headquarters will be at the Stevens Hotel. The twenty-fifth annual Hospital Standardization Conference sponsored by the College will be held simultaneously. The programs of both meetings will be based chiefly on wartime activities as they affect surgeons and hospital personnel in military and civilian service.

AMERICAN CONGRESS ON OBSTETRICS AND GYNECOLOGY

The general features of the program for the coming Congress which will be held in St. Louis, April 6-10, may be announced as follows:

The morning sessions will be divided into two periods from 9:30 to 11 and 11 to 12. The more formal presentations will appear in the first period.

Monday morning at 11 o'clock there will be a general "Obstetric Information Please", based on the well known quiz program and presided over by a moderator and four experts. This will be repeated on Wednesday morning, for shock and

hemorrhage; and Friday, on economics. Clinical conferences on genital infections will be held Tuesday morning at 11 and Thursday morning on "How Not to Treat Carcinoma." During the afternoons various groups will present formal programs devoted to nursing, public health, and hospital administration, among which will be certain combined programs.

A special feature of this Congress will be a daily consultation service at 3:30. About 50 nationally known physicians will make themselves available for fifteen-minute consultations through a registration system by individual practitioners who may desire such advice in their specific problems.

Practical demonstrations are scheduled in the scientific exhibit area on manikin deliveries, home care technic, and blood transfusions. Details of programs of other sections will appear shortly.

Further information is available at the Central Office of the Congress at 650 Rush Street, Chicago. Hotel reservations should be made directly and at an early date. Physicians, nurses, public health administrators, educators, and hospital administrators are urged to send in their registration fee of \$5.00.

George W. Kosmak, M. D.,
Chairman, Professional Publicity.

SOUTHEASTERN SURGICAL CONGRESS

The thirteenth annual session of the Southeastern Surgical Congress will be held in Atlanta, March 9-11. A list of prominent doctors, whose names are known nationally, will present the program. Further information concerning this surgical congress may be obtained from Dr. B. T. Beasley, 701 Hurt Building, Atlanta, Georgia.

NEWS ITEMS

A memorial meeting to honor the memory of Dr. William D. Cutter, former secretary of the Council on Medical Education and Hospitals of the American Medical Association, was held in the Assembly Hall of the American Medical Association on Monday, February 16. Dr. Ray Lyman Wilbur spoke on "Cutter, the Medical Administrator"; Dr. Charles Gordon Heyd, on "Cutter, the Medical Educator" and Father Schwitalla on "Cutter, the Man."

Passed Assistant Surgeon William Hyatt Gordon has been relieved, New Orleans, La., and ordered to U. S. Marine Hospital, Boston, Mass., for duty.

PHYSICIANS WANTED

A large industrial plant near Shreveport, Louisiana, has requested the assistance of two physicians to become part of their regular staff in conducting medical examinations on new employees, and caring for minor industrial injuries. Physician must have completed internship and should have had one or

two years of private practice. The duration of this assignment is permanent and pays a salary of \$400.00 a month.

For further information communicate with—

Mr. B. H. Day, Manager, or
Mr. J. S. Moonan, Senior Interviewer,
United States Employment Service,
127 Elks Place, New Orleans, La.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY

The general oral and pathological examinations (Part II) for all candidates (Groups A and B) will be conducted at Atlantic City, N. J., by the entire Board, from Wednesday, June 3, through Tuesday, June 9, 1942, prior to the opening of the annual meeting of the American Medical Association.

Application for admission to Group A, Part II, examinations must be on file in the Secretary's Office not later than March 1, 1942. It will greatly facilitate the work of the Board if applications are filed as far as possible in advance of the closing date for their receipt.

Formal notice of the time and place of these examinations will be sent each candidate several weeks in advance of the examination dates.

Candidates for *reexamination* in Part II must make written application to the Secretary's Office before April 15, 1942, 1015 Highland Bldg., Pittsburgh, Pa.

PROCUREMENT AND ASSIGNMENT SERVICES

Central Organization Office of Defense Health and Welfare Services and Directing Board: Dr. Frank H. Lahey, Chairman, President, American Medical Association, 605 Commonwealth Avenue, Boston; Dr. Harvey B. Stone, Vice Chairman, Associate Professor of Surgery, Johns Hopkins University School of Medicine, 18 West Franklin Street, Baltimore; Dr. C. Willard Camalier, Chairman, Dental Preparedness Committee, American Dental Association, 1726 Eye Street N. W., Washington, D. C.; Dr. Harold S. Diehl, Dean of Medical Sciences, University of Minnesota, Minneapolis; Dr. James E. Paullin, 384 Peachtree Street N. E., Atlanta, Ga.; Dr. Sam F. Seeley, Executive Officer.

Corps Area Committee: Chairman—Dr. Edgar Greene, 478 Peachtree Street N. E., Atlanta, Ga.; Physicians—Dr. Alfred A. Walker, 2250 Highland Avenue, Birmingham, Ala.; Dr. Edward H. Jelks, P. O. Box 1018, Jacksonville, Fla.

Louisiana. Medical—Dr. C. Grenes Cole, 921 Canal Street, New Orleans. Dental—Dr. Larry Dupuy, 837 Maison Blanche Building, New Orleans. Veterinary Medical—Dr. E. P. Flower, Box 24, Baton Rouge.

Mississippi. Medical—Dr. T. M. Dye, Box 295, Clarksdale. Dental—Dr. George P. Evans, Stand-

ard Life Building, Jackson. Veterinary Medical—Dr. E. S. Brashier, State Vet. & Exec. Off., Mississippi State Live Stock San. Bd., Jackson.

HEALTH OF NEW ORLEANS

The Bureau of the Census, U. S. Department of Commerce, has reported for the week ending January 10, there were 179 deaths in the City as contrasted with 164 in the previous week. These deaths were divided between the two races, 124 white and 55 negro. Ten of the deaths were in children under one year of age. For the following week which came to a close on January 17, there was a fairly marked drop in the number of people expiring this week. Of the 147 deaths, 96 were in negroes, 51 in whites. Eleven of these were in infants under one year of age. For the week which closed January 24, there was a still further reduction in the number of deaths in the City, the figures falling to 138, divided 92 white, 46 negro, with 15 infant deaths. There were 19 more deaths in the City for the week closing January 31. The 99 white deaths, 58 negroes, and the 13 infants made up a total of 157 demises in the City this week. There was a very sharp drop in the number of deaths in the week ending February 7, only 122 New Orleans citizens expiring this week, divided proportionately about equally between the two races. There were 79 white deaths and 43 negroes. Nine deaths were in infants in this particular week.

INFECTIOUS DISEASES IN LOUISIANA

The morbidity report of the Section of Epidemiology of the Louisiana State Board of Health shows that for the week ending January 10, there were 166 cases of gonorrhea reported. Other diseases in figures greater than 10 include, 143 of syphilis, 38 of lobar pneumonia, 28 of chancroid, 20 each of mumps and chickenpox, 14 of pulmonary tuberculosis, and 13 each of measles and diphtheria. Most of the cases of chancroid, and many of those of gonorrhea, were reported from army camps. Rather interesting that this week there were listed 9 cases of typhus fever, five of which originated in Lincoln, two in Madison, and one each in Orleans and Rapides Parishes. The following week which terminated January 17, syphilis as usual lead the list of reportable diseases with 187 instances, followed by 52 of gonorrhea, 35 of mumps, 24 of pneumonia, 20 of measles, 17 of pulmonary tuberculosis, 10 of diphtheria. Two cases of typhus fever were reported this week, and eight of typhoid fever, five of the latter coming from DeSoto Parish. For the week which closed January 24, diseases reported in numbers greater than 10 include, 168 cases of syphilis, 45 of gonorrhea, 30 of chickenpox, 24 of measles, 28 of pulmonary tuberculosis, 20 of lobar pneumonia, 15 of mumps, 13 of typhoid fever, and 11 of diphtheria. Seven of the typhoid fever cases originated

in DeSoto Parish, and five in Terrebonne. Polio-myelitis which had not been reported for some weeks was found in one instance to occur in Claiborne Parish and another in Rapides Parish. There were five cases of typhus fever listed this week. For the week which closed January 31, there were listed 421 cases of syphilis, 85 of gonorrhea, 53 of acute pneumonia, 39 of measles, 36 of mumps, 24 of chickenpox, 23 each of chancroid and pulmonary tuberculosis, 15 of diphtheria, and 10 of hookworm. There were four cases of typhoid fever reported this week from Rapides Parish, and only two others from scattered parishes in the State. One case of typhus fever was listed. The totals for this week were relatively high due to the fact that many of the contagious and reportable diseases were reported from army camps. For example, 19 cases of acute lobar pneumonia, 17 of mumps, 14 of chancroid, and 36 of gonorrhea were reported from the camps. For the first week of the month of February, which closed February 7, there were listed 257 cases of syphilis, 47 of measles, 34 of gonorrhea, 29 of lobar pneumonia, 24 of influenza, 21 of pulmonary tuberculosis, 14 of diphtheria, 12 of chickenpox, and 11 of mumps. The army camps reported a few infectious diseases in this week, and of the group of unusual diseases there were no more than one or two instances anywhere in the State.

THE NEW HEALTH BUILDING

Dr. C. L. Mengis, President of the Louisiana State Board of Health, announces that bids for contract to construct a \$348,000 office building in Baton Rouge will be open March 12. This board of health building will contain the central laboratories of the State Department of health, including the biological and chemical laboratories. In addition to the laboratories, there will be office space for all the division and section heads and for their departments. The building is expected to be completed in about a year. It will be immediately back and to the left of the building of the State Highway Department. The building will be simple in architecture, but dignified and handsome.

In addition to this particular building, plans will be drawn and bids asked very shortly for the health centers in Alexandria and Shreveport, to cost \$100,000. At Leesville, DeRidder, Lake Charles and Lafayette unit buildings, for which plans have already been drawn and space allotted by the Police Jury, will be somewhat smaller and cost \$30,000; \$15,000 units will be built at Crowley and Natchitoches, and somewhat smaller ones at Winnfield, Marksville, Ville Platte, Glenmora, Lecompte, Colfax, Bunkie, Oakdale, Jena, Fillmore, Plain Dealing and Elm Grove. These buildings will house the parish health units, and will provide ample space for offices, small laboratories, and clinics. All of these health centers are in so-called defense areas of the State.

WOMAN'S AUXILIARY
Louisiana State Medical Society
OFFICERS

President—Mrs. Aynaud Hebert, New Orleans.

President elect—Mrs. Clarence B. Erickson, Shreveport.

First Vice-president—Mrs. H. O. Barker, Alexandria.

Second Vice-president—Mrs. Cecil O. Lorio, Baton Rouge.

Third Vice-president—Mrs. B. L. Cook, Minden.

Fourth Vice-president—Mrs. R. W. O'Donnell, Monroe.

Treasurer—Mrs. Daniel J. Murphy, New Orleans.

Recording Secretary—Mrs. Rhodes Spedale, Plaquemine.

Corresponding Secretary—Mrs. Charles R. Hume, New Orleans.

The Mid-Year Executive Board meeting of the Woman's Auxiliary to the Louisiana State Medical Society was held on Wednesday, February 4, at the New Orleans Country Club at 10:30 a. m. with the President, Mrs. Aynaud F. Hebert, presiding. There were twenty-four members present. Interesting reports were given by the officers, parish presidents, chairmen and councilors attending and reports of the absentees were placed on file.

All of the State Projects have been supported by the parish groups. The Indigent Widows Fund which was discussed at the Post-Convention board meeting, as a new State Project and voted upon subject to the approval of the State Advisory Council, was brought up and a detailed explanation in regard to the purpose and function of this fund followed. The president stated that the Advisory Council had approved and a vote of ratification followed. Mrs. Hebert then announced an anonymous gift of \$25.00 to this fund. The Project was later ratified by the State Board.

In the report of the Chairman of Entertainment for men in service, the need of a portable radio for the use of men convalescing in the hospital of Camp Polk, was made known. It was suggested that several of the interested auxiliaries pool their contributions and purchase one. The suggestion was well taken and the parish presidents present

promised to take this recommendation to their organizations. The president said that the National Auxiliary is constantly urging all state and parish groups to do as much for National Defense as possible and stressed the important part which we as auxiliary members can and should take in all phases of health work so necessary in the present crisis.

Mrs. Hebert asked that each parish auxiliary make a small contribution to the Jane Todd Crawford Memorial Fund stating all money contributed to this fund is now being placed in Defense Bonds.

It is impossible to give the details of each report for time and space do not permit, but all of the chairmen are doing their part to make this auxiliary year a successful one. In addition to the aforementioned projects particular stress is being placed on Red Cross work, Health projects and Public Relations.

March 30 is Doctors' Day and the chairman of this project has written to all of the parish auxiliaries urging them to commemorate the day with some appropriate celebration.

The president has visited the following auxiliaries: Rapides, Terrebonne, Second District, East Baton Rouge, Shreveport, Natchitoches, Iberville, Lafourche, St. Landry, Tangipahoa and Orleans, and to all she wishes to express her sincerest thanks for their very generous hospitality.

The State Meeting will be held in New Orleans as scheduled, April 27-30. An interesting program is being planned and copies of same will be sent to all auxiliary presidents within a short time. Many urgent and important matters will be brought up during the convention and it is essential that all of you who possibly can attend.

The Orleans Parish Auxiliary extends a most cordial invitation to all auxiliary members throughout the state to come to New Orleans on the above mentioned dates.

Haddon Hall will be the headquarters for the Annual Meeting of the Woman's Auxiliary to the American Medical Association, which will be held in Atlantic City, New Jersey, June 8-12, 1942.

Respectfully submitted,

Mrs. Jules Myron Davidson,
 Chairman, Press and Publicity.

BOOK REVIEWS

The Blood Bank and the Technique and Therapeutics: By Robert A. Kilduffe, A. B., A. M., M. D., F. A. S. C. P., and Michael DeBakey, B. S., M. D., M. S., F. A. C. S. St. Louis, Mo., C. V. Mosby Company, 1942. Pp. 558, pl. illus. Price, \$7.50.

There are many reasons why we greet this book with unusual satisfaction. First, because after a rapid glance over its 558 pages and a view of its 218 illustrations, this reviewer is satisfied that it

is all and much more than its authors and publishers claim for it. Furthermore, it is pleasing to us that so large a part of the authorship of this fine work and of its pictorial features is the product of the combined literary industry of Dr. DeBakey and the artistic ability of Miss Morel, two local workers who have long attained distinction in their respective fields. The book is timely, new and crisp like a loaf still warm from the bakery. The title, "Blood Bank," which, ten years ago, could

not have been defined in any of the current lexicons, alone attests to its actuality and up-to-date modernity. The enormous value of blood transfusions in modern practice and its supreme life-saving value in counteracting the effects of shock and hemorrhage,—the dominant factors in the injuries of warfare and the accidents of civilian life,—warrant all the attention and space given to the *storage of blood*, whether bottled or canned, in refrigerated cabinets as “Blood Banks,”—or when kept alive in the circulation of duly classified and registered donors of a “Blood Donor Registry.” In the evolution and rise of transfusion to its present day simplicity and efficiency, the laboratory and clinic share the merits of achievement. As shown in the 16th chapter of this book, the tasks of the laboratory (Dr. Kilduffe) and those of the clinic (Dr. DeBakey) are remarkably interlocked and well balanced. The contributions of the laboratory, indicated by the titles—“Technique of blood typing and compatability tests;” “Anomalous blood typing reactions;” “The universal donors and the universal recipients;” “The blood bank;” “Changes which occur in stored blood;” “The operations of a blood bank;” “Plasma transfusion;” “The preparation and preservation of citrated plasma;” “The preparation of the concentrated and dried plasma;” are all very clearly and ably presented by Dr. Kilduffe in about 215 pages. The historical, clinical and surgical aspects of the subject are embraced in the chapters on “History;” “Rationale;” “Indications and contraindications;” “Military aspects;” “Methods and technique of transfusion;” and “Its complications.” These are readily identified with Dr. DeBakey by those who are acquainted with his historical and bibliographic tendencies and his native inventiveness,—which in this instance, is represented by two appliances—one with Gillentine,—a sleeve valve syringe, and, the other, a surgical pump for continuous flow from the donor to the recipient based on the principle of the “milking tube.” When in operation the connecting rubber tube is held in a metal case where it is compressed by rollers rotated by a crank arm which projects as a handle outside of the case. When attached and “the crank arm is rotated, the rollers will successively compress the rubber tube, producing “a milking effect” thus forcing the fluid content in clock-wise direction from donor to recipient.” In utilizing the milking tube in this appliance we recognize an old but highly modernized acquaintance, known in the 90’s as the Allen Surgical Pump, or the “compressible rubber tube aspirator and injector,” improved by Chas. Truax, the leading instrument manufacturer in Chicago, who figured it in his “Mechanics of Surgery (1899).” This reviewer used it at that time as a simple and efficient substitute for the more costly Potain and Dieulafoy pumps, in aspirating and injecting fluids and for hypodermoclysis with salt solution or other artificial sera in the treatment of shock and hemorrhage, and as “the axillary sup” in op-

erations on exhausted and marasmic patients. This was at a time when blood transfusion was still more historical than real and when we were inaugurating *intravenous* infusions with saline and other composite artificial sera, for shock and hemorrhage at the Charity Hospital. It is remarkable that the simple principle of the “milking tube surgical pump” should have been completely forgotten for nearly forty years, only to reappear in the recent suggestions by a number of authors who have found its most useful application in the direct transfer of blood from giver to patient, and of which the instrument devised by Dr. DeBakey is the simplest and most efficient,—if we may judge by the success that has attended its use in his very large experience and that of others here and abroad.

While this book is essentially practical and meticulously detailed in all matters of technic, the historical and bibliographic aspects of the subject have not been neglected. A total bibliography approaching 3,000 references attests to the thoroughness of the library research, which, in this case, differs from many of the laborious compilations transcribed by non-medical clerks directly from the Index Medicus and the Index Catalogue for use chiefly as a pad of erudition to the text and which the authors themselves scarcely know or have never read.

Much as the bibliographic indices have been and are being disgracefully abused, owing to the facilities afforded by the enormous expansion of our library system, this charge cannot be levelled against Dr. DeBakey, who is chiefly responsible for the bibliography of this book. For anyone familiar with the literature of this subject can at once recognize the painstaking and conscientious bibliographer by the correct concordance of the references with the text and by the judicious selections of the extra-textual references in the consulting indexes, which, in this instance, have added much real value to the book.

One of the most striking and valuable features of this book is its illustrations. As previously indicated, the large majority have been drawn expressly for this text by Miss Morel, well-known artist attached to the Surgical Department of the Medical School of Tulane. The drawings, chiefly woodcuts, and linear outlines, not only illustrate every phase of the technic, but they exhibit a pictorial gallery of the great pioneers of the 16th and 17th centuries, who laid the primitive foundation for the magnificent structure that modern science has built for the practice of transfusion as this is revealed in all the plenitude of its marvelous achievements by the authors of this book.

RUDOLPH MATAS, M. D.

Laboratory Diagnosis of Protozoan Infection: By Charles Franklin Craig, M. D., M. A. (Hon.), F. A. C. S., F. A. C. P. Philadelphia, Lea and Febiger, 1942. Illus. Pp. 349. Price \$4.50.

This diagnostic guide for the clinical laboratory has been written by the most distinguished authority in the field. Following a brief introduction in which the objective of the volume is presented, there are six sections, each of several chapters. The first section deals with intestinal amebae and flagellates, the second and third with the hemoflagellates (*Leishmania* and *Trypanosoma* organisms), the fourth with coccidia, the fifth with malaria plasmodia and the sixth with the ciliate protozoan, *Balantidium coli*. For each group and species of organisms there is not only a relatively complete presentation of the laboratory methods of identification, but also a "Critique of Diagnostic Methods", in which there are stated the most specific and valuable methods, as judged by the experience of the author and other competent diagnosticians.

The volume is clearly written, the material carefully selected and the information up-to-date. The author has assiduously confined himself to the subject in hand and has refrained from introducing other phases of clinical protozoology. There are 54 well-chosen illustrations, including zinc and half-tones, and four colorplates. There are nine pages of more important references, an author index and a subject index. The volume is well printed and conveniently bound. It deserves a place on the desk of every clinical diagnostician.

ERNEST CARROLL FAUST, PH. D.

Necropsy—A Guide for Students of Anatomic Pathology: By Béla Halpert, M. D. St. Louis, C. V. Mosby Company, 1941. Pp. 75. Price, \$1.50.

At last a manual describing completely a single method of necropsy. Instead of half-heartedly describing a number of methods, it chooses a method which permits (most technics in this country to the contrary) the preservation of organ relationships, and enables the pathologist to dissect first the systems of communication (blood and lymph vessels, nerves, and ducts) before the essential organ pathology has been disturbed. For the pathologist and others who have not had special training in anatomy, but especially for those who have over the years developed faults in anatomic observation, this small manual comes as a refreshing tonic. It reads easily, is concise and sufficient.

ALBERT E. CASEY, M. D.

Complete Weight Reducer: By C. J. Gerling. New York. Harvest House. Pp. 246. Price \$3.00.

After publishing the book entitled "Short Stature and Height Increase," Mr. Gerling felt there was a need for information on weight reduction which would expose reducing nostrums, frauds and quackery. The book is intended to be an encyclopedia, a dictionary and a guide to safe and scientific reducing. The introduction was written by Winfield Scott Pugh, B. S., M. D., retired Commander of the Medical Corps, U. S. N. He writes: "The comprehensiveness of the book is certainly

remarkable. There is no phase of the subject which the author has been content to disregard."

There is perhaps a place for this book for the uninformed reducer. It points out the dangers of dinitrophenol, thyroid, benzedrine, ephedrine and other stronger medications. It considers the harmful aspects of the eighteen day diet, grape juice diet, and banana diet, and the milk and egg diet. He shows the uselessness of reducing salts, soaps, machines, electrical devices, salves and vibrators. However, in spite of this, he clings to certain aspects of weight reduction deemed "quackery" by the medical profession. He gives exercises for the reduction of a redundant chin, for the arms, legs and other parts of the body. A rotatory exercise of the foot is advocated to produce a slender ankle. The bust is reduced by circular exercise of the arms.

Nowhere is mentioned Mr. Gerling's qualifications to write on the subject. The only reference in the entire publication is to that of "Consumers Union" to which he refers repeatedly. Although he exposes much fraud in the field of weight reduction, the general tone of the book is pseudoscientific.

TRAVIS WINDSOR, M. D.

Clinical Immunology, Biotherapy and Chemotherapy: By John A. Kolmer, M. S., M. D., Dr. P. H., Sc. D., LL. D., L. H. D., F. A. C. P., and Louis Tuft, M. D. Philadelphia, W. B. Saunders Co., 1941. Pp. 941. Price \$10.00.

As the authors say in their preface, the past fifteen years have been extraordinarily fruitful in the realm of infection, immunity, biotherapy and chemotherapy. As a matter of fact in the treatment of the acute infectious diseases the man who practiced the teachings of fifteen or twenty years ago, nowadays might almost be considered to be a subject for scorn. However, there is very little likelihood of this contingency arising, inasmuch as every doctor is giving patients with any type of infection one or another of the sulfonamide preparations; all types of sera and vaccines are being used routinely in the treatment of many diseases, so routinely that the man who prescribes them often does not know the why nor the wherefore. It is largely to meet this need that the present volume has been prepared.

Part I of the book, some twelve chapters, has to do with the general aspects of infection, immunity, biotherapy and chemotherapy. It is in this section that the why is explained. In the next part, in all twenty-four chapters, there is a discussion of the practical applications of immunity, biotherapy and chemotherapy in the prevention and treatment of disease.

Practitioners should note the details of Part I but would be very much more interested in Part II. More than of interest will be this section because it will teach and guide the man who only occasionally sees meningococcal meningitis or tetanus,

typhus fever or any of the unusual infectious diseases. This section tells what chemotherapeutic preparations to use, as well as what biologic preparations are valuable. Particularly to be commended is the accurate editorial limitation of the drugs and biologic preparations which may be used. The authors conservatively recommend agents when and where they should be used and definitely indicate the many infections in which they are of no value.

Another commendatory feature of the volume is the summary of diseases enclosed in a block and giving only the very essential features of the disease. In the block form the abstract of the important features of measles, for example, contains two or three lines on etiology, five lines on transmission of the disease, a few lines on immunity, three words on active immunization, mentions the prevention of the disease by passive immunization, sketches the modification produced by passive immunization and then three lines which tell what may or may not be accomplished by serum and chemotherapy. To the busy man this epitome of measles can be read in a very few minutes, or that of any other diseases, infectious in nature. The full discussion of the details of the summary may be read in the accompanying pages of the text.

It is remarkable how completely up to the minute is the book. It must have gone through the press very rapidly because the latest sulfonamide preparations are mentioned and discussed and most recent advances in therapy are incorporated somewhere in the 880 odd pages of the treatise. It would be rather difficult to see how a physician who is called upon to treat infectious diseases can get along without this really excellent compilation of the personal experiences of the authors and the experience of others in the several phases of infectious diseases pertinent to the title.

J. H. MUSSER, M. D.

Occupational Diseases: By Rutherford T. Johnstone, A. B., M. D. Philadelphia, W. B. Saunders Company, 1941. Pp. 558; 26 tables, 132 photographs, and 114 diagrams. Price \$9.00.

Material and experiences forming the background of the book are drawn from the author's twenty-five years' work in an industrial clinic with annual admissions exceeding 10,000 patients. This clinic at the Golden State Hospital, Los Angeles, California, using the referral system of case admission, makes possible the study of a large cross section of occupational disease.

The aims of the text, as stated in the author's preface, "are to outline a basis for the diagnosis and treatment of the more common occupational diseases, to interpret the medicolegal phase and to offer from experience the expected disability." In this attempt to present the subject to fill the needs of both the general practitioner and the medical

student, these aims have been achieved with a definite degree of success.

RALPH H. HEEREN, M. D.

Immunity against Animal Parasites: By James T. Culbertson, Ph.D. New York, Columbia University Press, 1941. Pp. 274. Price \$3.50.

This volume is not a primer of immunology or of parasitology, but rather a presentation of present day knowledge of immunologic reactions in animal parasite infections. Following a general introductory chapter dealing primarily with the historical landmarks in this relatively new field, there are successively considered in Part I the subjects of natural resistance, age resistance, acquired immunity, immune responses, the mechanisms of immunity and their demonstration. Part II deals with immunity in specific diseases, as "the amebiasis" (*sic*), the leishmaniasis, the trypanosomiasis, the malarias, the coccidiosis, the trematodiasis, the cestodiasis, the nematodiasis, and response to arthropods. Part III, designated "Applied Immunology," discusses the classification of parasites from the viewpoint of their group immunologic reactions, vaccination, and diagnosis by immunologic tests.

On the whole the material is presented quite objectively and with satisfactory balance, considering the disparity of information in the different subject groups. It is really a concise digest rather than a manual on the subject. It should be very helpful in directing the interested reader to literature sources, the majority of which are cited in numerous footnote bibliographic references. To one primarily acquainted with the parasitic infections of the human body, it is of interest to note the large amount of immunologic investigation that has been carried on with parasites of lower animals. Many of these comparative studies provide a composite framework supporting the subject and bridging the gap between immunology in the field of bacteriology and that of animal parasites.

The text is illustrated with three charts, four tables and two plates of figures. The style is good and the typography pleasing. Factual and typographic errors are relatively few.

ERNEST CARROLL FAUST, PH.D.

Manual of the Diseases of the Eye: By Charles H. May, M. D. 17th ed. rev. with the assistance of Chas. A. Perera, M. D. Baltimore, Wm. Wood & Co., 1941. Pl., pp. 519. Price \$4.00.

The seventeenth revision of the American edition of this textbook has been recently completed. Included are 93 colored figures and 387 illustrations. Some parts have been rewritten and additional material and illustrations have been added. Of special interest are two new color plates, one demonstrating Stilling's and Ishihara's pseudo-isochromatic plates for testing color perception and the other demonstrating Koch-Weeks and Morax-Axenfeld bacilli.

The author has shown keen foresight in presenting an appendix giving the ocular requirements for admission to the U. S. Army, Navy, Marine and Air Corps.

The most common pathologic conditions of the eye are described, and principles of treatment are discussed in a practical and comprehensive manner. Rare and less common diseases have been omitted.

The manual is, unquestionably, the best textbook on the market today for students and the best reference book for the general practitioner. It should be included in every physician's library.

While the changes in the present edition are noteworthy, it is not an essential addition to the libraries of those who possess the sixteenth edition.

GEORGE M. HAIK, M. D.

Wounds and Fractures: By H. Winnett Orr, M.D., F.A.C.S. Springfield, Ill., Chas. C. Thomas, 1941. Illus. pp. 227. Price \$5.00.

This work is a clear exposition of the "Orr method" of treatment of fractures in general. A great deal of emphasis is laid upon the author's methods in caring for compound and infected fractures and wounds. As an exposition of his own results in the care of a wide fracture experience, the book is extremely interesting, although many of the author's personal opinions are at wide variance with those of other men. No mention is made of the value of the sulfonamide drugs in the care of early compound fractures or in the care of chronic infections. Insufficient emphasis is laid upon the nature and extent of the debridement necessary to ensure success with the Orr method. A good deal of experience is necessary and a degree of judgment required to use successfully transfixion pins to the same extent as Doctor Orr uses them.

In the field of simple fractures there are many opinions expressed which will not receive ready acceptance. After inserting a nail to fix a fracture of the neck of the femur, the application of a double spica using transfixion pins through the distal and proximal femoral shaft seems to defeat one main purpose of the nailing operation: early mobilization of adjacent joints, and particularly the possibility of getting the patient up and out of bed as early as possible.

The "Orr method" is still one of the great contributions made in the field of surgery, and has proved its worth beyond question of doubt. This work should be carefully studied by anyone interested in the care of traumatic wounds.

FRANK J. COX, M. D.

Trauma and Disease: Edited by Leopold Brahdry, B. S., M. D., and Samuel Kahn, B. S., M. D. 2d ed. Philadelphia, Lea and Febiger, 1941. Pp. 655, illus. Price \$7.50.

The fact that this treatise on trauma and disease is now in its second edition reflects the need for such a guide volume. Few physicians stop to consider the effects of trauma on disease of the vari-

ous systems of the body unless confronted by a medico-legal case. While the role of trauma may be overestimated by the layman it is frequently underestimated or neglected by the physician. This volume takes up the effects of trauma on the various systems of the body, each system being presented by a well qualified authority on the subject. In this way reliable, concise information is easily accessible plus reference to considerable bibliography on each subject. This book should be invaluable to physicians interested in medico-legal medicine and a welcome addition to any physician's library.

RANDOLPH LYONS, M. D.

Reports on Medical Progress—1939—As Published in the New England Journal of Medicine: Compiled and edited by Robert N. Nye, M. D. Boston, Little, Brown and Company, 1941. Pp. 562. Price \$5.00.

Among the valuable papers in the New England Journal of Medicine are the progress reports which cover the various branches of medicine. These are written by men of eminence in their respective fields and include many practical and new facts concerning the specialties and various aspects of medicine and surgery.

These are now being put into yearly volumes so that all the valuable papers may be easily reached. Nowhere can one find such a compilation of progress articles as are present in this volume.

JOSEPH ZISKIND, M. D.

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THE PLACE OF MEDICINE TODAY*

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BOSTON, MASS.

As an introduction to this more or less sermon-like or one might almost say exhortation-like talk, I would like to read an editorial which I wrote at the request of the editor of the Indiana State Medical Journal, soon after my election as President-elect of the American Medical Association and which was published in that Journal in September, 1940. I wish to read this in order that I may present what I then thought was the place of medicine and in order that I may now draw some general deductions and some deductions in relation to the place of medicine today. If in it the non-medical public finds any truths or lessons which they can apply to themselves I feel certain that medicine will have no jealousy about their utilizing them.

"The tradition of complacency is one of the most difficult ones to break down. When it has been bred and established in the minds of citizens of a country that its position as to defense is impregnable, that its history of past achievements in wars is unblemished, that its financial resources are unlimited, that its population is one of the greatest in the world, that its manufacturing productiveness is at the world's highest level, that its natural resources are the equal or superior of most countries in the world, and finally that it is separated

from all large and powerful countries by two large oceans, is it to be wondered at that complacency pervades the country? It is now trite to remind the American medical public of the penalties which have been paid by European countries for such a complacency. It is trite indeed to speak of the sad effects upon some of the European countries of political division, political bitterness and political selfishness. It is trite indeed to call attention to the fact that of what good are working hours, of what good are wage levels, what satisfaction is there in various labor arrangements if the country has its standard of living lowered by economic competition, or its labor dominated by foreign powers. One opens himself always to the possible criticism of being an alarmist by making some of the previous statements. Were they applied to the general public, this might possibly be said of the writer. When they are confined, however, to such a relatively small, understanding, and well organized group as is medicine, this criticism should not hold. Medicine can always work a few extra and longer hours. No doctor has ever felt himself a candidate for a union or for limitation of his hours. Medicine can always give a little more of its time. Medicine has made sacrifices from its very beginning and will if there be an emergency, as there appears to be, make a few more sacrifices. Medicine has in the past few years been subjected to many unjust and undeserved criticisms. If it organizes itself for the immediate emergency as it has always met emergencies in the past, it will emerge even more appreciated than it has been in the past. It is distinctly possible that the times which are coming may well serve as a boon in that the

*Read before the sixth annual meeting of the New Orleans Graduate Medical Assembly, March 5, 1942.

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public may come to realize by our example what medicine can do and has done."

This editorial is not quoted with any idea of, I told you so and see what a prophet I am, attitude. This is an attitude with which I have neither patience nor interest. Such an attitude, however common it may be in some of our public utterances, is really not concerned with the good of the country and the security of its future but rather with the good of the prophet and the enhancement of his individual future. I quote my editorial of that date quite impersonally and with the sole purpose of calling attention to the penalties which we are now so painfully paying for these complacencies.

Is it necessary in illustrating this complacency to recall the bitterness with which even the mention of an American Expeditionary Force was greeted a short time ago (how we wish we had it ready now) and yet the phrase, "too late" or "too little", if not on the tongue is in the mind of almost everyone today who is honest with himself? How the miles have shortened in our Western and Eastern oceans with vessels being sunk almost daily on our figurative Eastern and Western front doorstep. Were I to search my mind to its utmost capacity for an outstanding and convincing example of what I would consider a soul stirring reminder of the penalty of complacency, I could not think of one which would even remotely rival that of the Pearl Harbor complacency, costing as it did lives, suffering and naval equality in the Pacific with its incalculable relationship to the present Japanese successes, their ultimate effect upon the prolongation of the war and the increased costs in life and suffering for its successful completion. There is no real, convincing evidence even now that the shock to our complacency by some of these events has produced the lasting effects upon us which it should. We are still having labor bickerings, strikes, shutdowns in the country, and personality conflicts, ideologic disagreements and political contests in Washington, all of which are based upon the assumption that we are going to have

a country which we still rule and not one which some dictator dominates.

Note in this editorial in 1940 the suggestion that labor, or for that matter I might well have said, business or political reforms are of no value unless the country exists upon somewhere near the same basis as it now exists. Add to these, because they represent a parallel futile situation, the question of social reforms on the part of our Government in Washington, and let us ask ourselves and our fellow citizens in labor, capital and politics—and whatever side we take in these contentions, if we lose this war all contentions dissolve and we come very close together again as fellow sufferers, that we realize how stupid were our disagreements. Let us ask our fellow citizens I say, "When and how do we overcome our complacency to the degree that we realize the time has come for a real singleness of purpose that places one thing so far above everything else that others do not even deserve consideration?" That is the winning of this war. How many shocks do we need to make us really aware of our dangers and willing to face them frankly? How much nearer do we need the war to our front porch than off the port of New York and the coast of Florida before we become aware of the fact that an amateur boxer in the ring with the present heavyweight champion would make a sorry showing indeed? How long must we go on blind to the fact that German efficiency is paying high dividends and that it is based upon no racial superiority, upon no mysterious reasons but upon greater effectiveness as the result of centralized authority, upon, if need be, compelled unity of purpose and, most importantly, upon a realization that it is for them a life or death struggle—a possibility which this nation is as yet unwilling even remotely to consider realistically?

We tend constantly to console ourselves with a philosophy which is an exceedingly soothing and dangerous one expressed by, "Wait until we get going; wait until our airplane production gets rolling; wait until our munitions production gets under way; wait until our Army gets trained; wait un-

til our two ocean Navy is in action." This is all true, thanks to what we must now admit was stupidly dumb complacency. We do have to wait. There is no way around that now, but we do not have to wait indefinitely to get this country on the common footing upon which it will have to get if we have many more catastrophies. The country has shown itself ready to stand behind shutdowns on the production of automobiles. It is ready to cooperate in tire shortages and will, if it can shake off its complacency, unhesitatingly support any compulsory measure which prevents interference with war production either on the part of labor, capital or politics. While I am not qualified, nor am I concerned with doing it, to decide as to the causes, I am certainly competent to discern that this country has in the business of production, in the political conduct of government and in the philosophy of social reform so cultivated the habit of arguing, bickering, name calling and smearing, eventuating into blame placing investigations that it is impossible, I believe, for even the investigators and principals themselves to know who is wrong and how it can be corrected much less the poor, confused public who really pay the bills and any other incidental penalties.

I have recently said that personality and political differences are attitudes which have no place in a nation in the war straits in which we find ourselves. They are, for me, luxuries which are to be reserved for times of peace only. They serve no useful purpose except to bring about division, delay and discord and thus promote the cause of our enemies, a fact which should be forcibly called to the attention of those who either thoughtlessly or emotionally employ them.

If any of my listeners or readers interpret into these remarks bias, prejudice or pressure against labor, capital, social-economists, political forces or government, I shall be sorry. It is not my purpose in them to be in any way destructively critical but to promote nationally the idea that if we are to cope successfully with demonstratedly

efficient and effective opponents we must be capable of taking advantage of their experiences. Even if all of the glowing and complacently accepted virtues spoken of in the quoted editorial with which I opened this talk were true of this country, and we now have had revealed to us that many of them are not, we would still not be able to present to two such efficient and prepared war machines as Germany and Japan possess, the advantages which go with a country divided politically, socially, economically and psychically. I wish particularly to stress the word psychically. If I, as a doctor, were asked to select the single thing from which this country suffers the most today but which is, by a better attitude of unselfish and patriotic tolerance, still capable of correction, it would be that it is psychically divided. I am not concerned with how it came about. I imply no criticism in any way to any individuals or groups in that respect. I only know that there is lacking in the country the same psychic unity that was present in the last war and without which there can be no completely satisfying accomplishment in this war.

I am prompted to speak so openly about a subject as delicate as is this one particularly at this time, because my travels to all parts of the country and my contacts with all types of people in and out of medicine convince me of the truth of this statement. I am prompted to call attention to the disadvantages of national psychic disunity with the hope that, by recognizing its existence and harm and at least until the country's future appears more secure it will be possible by more unselfish tolerance of conflicting viewpoints to accomplish its correction without waiting for a near national catastrophe to bring it about and at the price which France paid for such disunity.

It is to be noted that in the quotation of this 1940 editorial it was suggested in the closing paragraph that medicine organize itself for the emergency (then apparent) and that by doing so it might well serve as a worthy example to the non-medical public in terms of forehandedness, willingness

to make sacrifices and ability to rise above group resentments.

The forethought of the American Medical Association's National Committee on Medical Preparedness, which accepted the idea of a procurement and assignment service to provide medical personnel for the armed forces and to prevent civilian depletion of doctors and recommended it to the President, the Secretaries of War and the Navy and the Surgeons General of the Army, the Navy and the Public Health Service, together with the willing and prompt cooperation of the President in appointing such an agency, is evidence of the fact that American medicine profited by the lessons of the last war and was thinking well ahead concerning the then evident impending war. The fact that there are already 15,000 doctors in the service, the fact that following the recent appeal for more doctors 25,000 have volunteered to the Procurement and Assignment Service in the last two months, together with the fact that of the 65,000 doctors under 45 who by terms of the recent change in the law are available for the draft, 86 per cent are physically fit and of the single ones 63 per cent and of the married ones 48 per cent have signified their willingness to serve—is evidence of the willingness of American medicine to make whatever sacrifice is necessary for the country's need.

Following the establishment of the Committee for the Procurement and Assignment of Medical, Dental and Veterinary Personnel, with its advisory committees of all of the diverse interests in medicine, the Adjutant General's office by order of the Secretary of War on January 21, 1942, issued an order that following that date all applications to Corps Area and Department Commanders for appointments in the Medical, Dental and Veterinary Services in the Army of the United States should be forwarded to the Procurement and Assignment Service. A very similar order was made effective for the Navy, as follows: When a requisition for medical or dental personnel is received for the United States Navy medical department by the Procure-

ment Service, the names of doctors and dentists available will be forwarded by the Procurement Service to the Navy Department, which agency will forward the necessary blanks to the applicant and forward to the Procurement and Assignment Service the names of those applicants who have been commissioned or assigned positions in the service concerned. It is obvious from the above plans accepted by the Army, Navy and other Federal agencies requiring medical personnel that the responsibility for the providing of medical, dental and veterinary personnel has been placed directly in the hands of medicine and its allied branches. This demonstrates how complete has been the trust of the Government in medicine to fulfill not only its obligations to the armed forces of the Government and its associated Federal agencies, but also its obligations to see that undue depletion does not occur and that proper medical, dental and veterinary attention is available for the civil population including hospitals, medical schools, industrial plants and many other projects requiring medical personnel. What the ultimate strength of the armed forces will be is impossible to estimate and state at the present time. One can only say that it will probably be of such ultimate size as to tax the complete resources of medical, dental and veterinary personnel of the country and still provide proper care for the civilian population.

There will shortly be sent out by the Procurement and Assignment Service a complete and final questionnaire, which should be filled out by every doctor in the country, by means of which the national roster of physicians, dentists and veterinarians will be brought up to date for employment by the Procurement and Assignment Service.

Because there is a very distinct tendency on the part of doctors to be resentful of, and negligent with, questionnaires, it should be plainly stated that this questionnaire is not primarily for the benefit of the Government. It is preeminently for the benefit of the doctor, aimed as it is by means of the information obtained from it to get him into the place he can best occupy. It is

striking evidence of the trust that is placed in him, on the part of the Government to be willing to let him do, without pressure, whatever he is best suited to do in this period of national need.

There has been established in each of the nine Corps Areas of the country a Corps Area Committee with a chairman, two physicians, two dentists, a veterinarian, a hospital representative and a representative of medical education. Since each Corps Area is made up of several states, there has been appointed in each state a state chairman with a dental representative. These state chairmen, with the committees they appoint, to meet the needs of their particular states will receive from the executive office of the Procurement and Assignment Service the names of those physicians, dentists and veterinarians who have volunteered their services as obtained and cleared through the information available in the national roster. Through the regional office these names will be forwarded to the state chairman, who, with his appointed committeemen, will certify them to the central office of the Procurement and Assignment Service in Washington as to their military availability, having in mind civilian, medical school, hospital and other essential needs.

From the above description one may say with pardonable pride that organized medicine represented by the American Medical Association since it instituted the procurement and assignment plan and paid for and set up the only complete roster of the physicians of the country has as well as any group in the country foreseen and accepted the probability of a national emergency; that it has foresightedly planned for its probable obligations to the armed forces and civilian population and has accepted them, and that it possesses perhaps as well as any group in the country that patriotic and psychic unity so necessary to the conduct of any war ordeal of the magnitude of this one.

If my wide contact with medical groups all over these United States is any criterion, there is no question concerning the place of

medicine today. There will be no question of, can we get enough medical men to take care of the armed forces? Rather will it be, can we keep enough doctors, dentists and veterinarians from volunteering and joining the services so that the civilian population will be adequately cared for?

Assignment and not procurement will eventually be the real problem of this service. It is the purpose of the Procurement and Assignment to place a distinctive registered and numbered service button upon every doctor in the United States who has registered with the service. It is hoped by the Procurement and Assignment Service that the public will recognize in the wearer of one of these buttons a doctor who has registered with the Procurement and Assignment Service as willing to serve in whatever place and capacity he is thought suitable for. It may eventually be more trying for those who are required from the necessities of civilian care, hospital maintenance, medical school teaching, physical defect or age to remain at home than for those who go into the service. It is most important that the public recognize this button as a badge which signifies that the decision which places its wearer where he is, has been made by the Procurement and Assignment Agency, and not by the individual who wears it. It is to signify that although he may not be in uniform he has signified his willingness and that regardless of this he too serves.

TEN YEARS' EXPERIENCE TREATING MALARIA BY THE SHORT COURSE METHOD*

J. P. SANDERS, M. D.
SHREVEPORT

In treating any disease as chronic and universal as malaria, time is an important factor in evaluating the efficacy of any drug. For this reason I believe this paper may be of some value. It covers the number of patients treated for malaria during the entire period from 1930-1940 inclusive.

*Read before the Louisiana State Medical Society, Shreveport, Louisiana, April 21, 1941.

It covers a number of different antimalarial drugs.

In 1930 the work was started with quinidine because of an idiosyncrasy one patient had to quinine. It was found later that she was sensitive to most of the levorotary cinchona alkaloids, but not to the dextrorotary ones of which quinidine is the most common. Because the toxicity of quinidine was unknown single daily doses of 10 grains for four days were tried with good results.¹

By 1931 I considered quinidine so good in the treatment of malaria that a comparison was carried out with quinine in the same dosage on alternate patients. The results showed quinidine to be at least equally as good as quinine.² The relapse rate was about 25 per cent in benign tertian and 40 per cent in estivo-autumnal infections.

In the meantime Dawson and Harms³ did some work on the toxicity of quinidine in guinea pigs in comparison with quinine. They found quinidine about one-third more toxic than quinine. But it is now felt that quinidine is about as safe or possibly even safer in the human being than quinine. Differences in toxicity of two drugs between human beings and experimental animals occasionally occur.

In 1932 Sioli⁴ first reported atabrine (atebrin) in the treatment of human malaria using only a five day treatment (4½ grains daily). The author of this paper was sent a few ampules to use experimentally. Collins,⁵ in 1934, reported a series of cases treated in Batavia by a single 1 gram (15.5 grains) daily dose of quinine for three to four days. Hill and Olivarría⁶ reported similar results with quinine in 1935.

By 1935 I⁷ had accumulated a series of 1047 cases of malaria treated with quinidine alone. Until July, 1933, the treatment had consisted of 4 single daily doses of 10 grains. Then it was increased to five days with two doses (10 grains) the first two days, a total of 70 grains. A statistical study of those cases for 5 years disclosed the following results:

Cures—1 year, 74 per cent; 2 years, 78 per cent; 3 years, 68 per cent; 4 years, 86 per cent; combined, 75 per cent.

Of the 842 cases that could be followed for one, two, three and four years, 630 remained well, or 75 per cent. This percentage was confirmed a year later with a further study of another 302 cases treated with quinidine and another year of follow-ups. In that paper⁸ I presented 81 cases treated with quinine, seven treated with hydroquinine, 48 treated with cinchonine and cinchonidine, seven treated with hydrocinchonine and hydrocinchonidine and 56 cases treated with atabrine. Thirty-seven per cent of the patients with atabrine relapsed which was comparable to quinine and quinidine. The other rare cinchona alkaloids, though a small series of each, confirmed previous reports of their efficacy in malaria.

During 1937, with the cooperation of 32 physicians⁹ of Northwest Louisiana and the Charity Hospital of Shreveport, a large scale study and comparison of the two drugs, quinine and quinidine, was made. A total of 1138 cases were treated and the majority of them were followed for the remainder of the malaria season both clinically and by blood smear. Certain interesting facts were revealed from that study:

1. Ten to twenty grains of quinine daily are as effective as 30-40, or 60-90 grains daily.

2. That the five day course of quinine is as effective as the longer course, that is, 14 days with 10 grains two nights a week for the rest of the season.

3. Complications of pregnancy, surgical operations or wounds seemed to make little difference in the length of time required to bring the temperature to normal, all within 72 hours or less.

4. Quinidine had a relapse rate of 15 per cent in benign tertian and 13 per cent in estivo-autumnal while quinine had a relapse rate of 20 per cent in benign tertian and 30 per cent in estivo-autumnal.

5. Relapse rate for the season, both sexes and races, all ages, was 17 per cent.

In a subsequent paper Sanders and Dawson¹⁰ reported a comparison of 10 and 20 grains daily of quinine sulfate on 46 cases with no significant differences. Relapse rate within a year was estimated between 25-45 per cent, which compares favorably with Hackett.¹¹

In all this work blood smears have been taken on most of the patients. The two strains, benign tertian and malignant tertian or estivo-autumnal have been compared. But I have consistently carried the negative group, feeling that it represented patients who had malaria, though no parasites have been found. Though it is admitted there are some mistaken diagnoses, I feel that many patients are treated without demonstrable parasites in the peripheral blood and that some patients get well even though they are not treated. Out of 81 cases of the 1937 series showing positive blood smears at some time after treatment 40 per cent of benign tertian and 66 per cent of the estivo-autumnal did not relapse clinically during the season, though no further treatment was given. Blood smears are absolutely essential and should be done on every patient with malaria, especially since there are so many public health laboratories that will examine gratis for the physician. I doubt if we are justified in waiting for a positive blood smear before starting treatment. It has been my plan to start treatment as soon as the diagnosis is made.

Two main objects have evolved as I continued this study of malarial therapeutics: first, to determine the efficacy of quinidine in malaria and second, to determine the effectiveness of the short course of treatment. Since little work had been done on quinidine and none at all in this country, there was only slight competition. Sinton,¹² in 1930 working in India, had reported a few cases treated with quinidine and found it about equal to quinine. Physicians prescribed quinidine in 3 grain doses to cardiac patients with fibrillation, but were cautious not to use it in larger doses. Though quinidine got into the phar-

macopeia because of its antimalarial value, this value had long been forgotten.

The second object of this study, the short course, has been easy to follow out. Doctors realized that the long course did not cure all the patients. Some relapsed while taking their 10 grains of quinine every night. While the short course may not be any better as a curative than the long course, it is much cheaper for the patient and far more agreeable. But many workers believe that the patient has to build up immunity to the disease and, if this is true, then the short course is preferable to the long, in that it allows a few parasites to remain in the body and develop immunizing substances in the blood. Some of this work tends to bear that out. Of those 81 cases that had parasites in the blood following treatment (1937 series) 16 benign tertian and 27 estivo-autumnal never had clinical manifestations during that season following the positive blood smears and some were found later to be blood smear negative.

Idiosyncrasy is about as common with quinidine as with quinine. I have had six instances among the 2215 patients treated. This observation bears out the ratio ordinarily expected with quinine, one to 300, to one to 500. The reaction varied from the very mild case of urticaria to a moderately severe one. No patient has been sensitive to both quinine and quinidine.

Women in all stages of pregnancy from the first to the last month tolerate quinidine well. I have never known of quinidine causing uterine contractions. Neither does it cause tinnitus. I am sure that textbooks stating that it does are mistaken, because I have questioned hundreds of patients and I have yet to have my first one to say that it does. It occasionally causes a slight syncope, which is relieved if the patient lies down for an hour. It probably does not cause amblyopia as quinine sometimes does. There is not a case of amblyopia on record from the administration of quinidine, though there are many from quinine. Dawson and confrères showed in 1937 that the quinine may make a dog go

blind in two days (lethal dose), quinidine causes little or no change in the dog's eye. Hematuria cases caused by quinine have all tolerated quinidine with no recurrence of the hemorrhage.

TOTAL CASES TREATED BY SHORT COURSE

	Atabrine	Quinine	Quinidine	Others	Total
1930	0	0	39		39
1931	0	61	65		126
1932	1	0	130		131
1933	29	0	502	9 C, 17 Cd	557
1934	9	0	311	3 Hq, 3 H	327
1935	16	20	302	13 C, 9 Cd, 4 Hd	364
1936	12	40	152		
1937	13	1124	361		1498
1938	14	118	93		225
1939	6	31	112	4 S	153
1940	8	55	148	3 S, 22 E	236
Total	108	1449	2215	87	3656

C—Cinchonine.

Cd—Cinchonidine.

S—Sulfanilamide and sulfapyridine.

E—Experimental drug.

Hq, H and Hd—Hydroquinine, hydrocinchonine and hydrocinchonidine.

In the accompanying table it will be noted that seven patients have been treated with sulfanilamide and sulfapyridine. Two patients did not respond readily and were put on quinidine. The minor cinchona alkaloids were about equal to quinine and quinidine in their reaction. Not enough patients were treated with any of these to draw definite conclusions. But of the 30 or more cinchona alkaloids most of them have antimalarial value. That is why a cinchona febrifuge, commonly used in chill tonics, cures malaria as well as it does. Cinchonine and cinchonidine probably have about the same value as quinine and probably should be used in about the same dosage.

ATABRINE TREATMENT

The 108 cases treated with atabrine have been distributed over a nine year period. There was no occasion for me to work on atabrine, especially since everybody else was doing it. But some very definite opinions have been formed by me. I believe it is of definite value in malaria, though not 100 per cent sure as was at first claimed. In my experience it has been effective in about 65-75 per cent of the cases

and I consider it equal to quinine in its efficacy. It is slightly more toxic than quinine in some cases, probably due to the fact that it stays in the body so long—70 days in case of the rabbit, according to Dawson. It causes jaundice at times, probably due to some liver damage and has been known to cause mental symptoms. A course of treatment should not be repeated in less than two months. There is a strange similarity between all the antimalarial drugs in that they "cure" from 65-75 per cent of the cases.

DIFFICULT CASES OF MALARIA TO TREAT

One of the most difficult problems met with in malaria is the acute cerebral or comatose type. The patient's temperature may be 105-6° F. or it may be subnormal. A blood smear may reveal up to one-third or one-half of the red cells harboring parasites, some with as many as six or eight to the cell. One half the red cells involved is usually considered incompatible with life. Every cerebral malaria case is in extremis. The best procedure at present, I believe, is the immediate use of quinine hydrochloride (15-30 grains) given as an infusion, and repeated if necessary.

Hemorrhagic malaria or black water fever, swamp fever to native Louisianians, is another difficult type of malaria to treat. In most cases the malarial parasite cannot be found, for some unknown reason. Here is a type of case where diagnosis must be made clinically. Frequently, the patient has taken some quinine. One of my patients developed hematuria following quinidine. It seems at present that this may be a type of idiosyncrasy to the drug. In that case, it is advisable to switch to the other drug—quinine to quinidine or vice versa. In no instance has a patient who has been changed to the other drug failed to have his blood become free of parasites.

Chronic malaria is a different problem entirely. An acute disease develops into a chronic one. Just how chronic it may become no one seems to be sure about, but no doubt it lasts for four or five years. A malariologist reporting from Amsterdam two years ago described typical cases that

were on the Macedonia front in the other war, 21 or 22 years ago. These chronic cases develop a biologic balance between the plasmodia and the blood stream. Often physicians are unable to demonstrate the parasites in the blood. The body is never quite able to rid itself of all the organisms at any time. With lowered resistance an acute attack may come on at any time. I have found it the best practice, in chronic cases of malaria, to give a series (usually three) of short courses with 10-15 days' rest intervals between.

Complications of pregnancy or deafness I believe are safer treated with quinidine. In cases of an allergy toward either drug, then one of the others should be tried. No cases have been reported sensitive to atabrine. Patients who are nervous or have a neurotic tendency, or patients that relapse from atabrine in less than two months should be treated with the cinchonas. The quinine may cause amblyopia or even blindness, no work has been done showing that it made defective eyes worse.

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DISCUSSION

Dr. D. B. Barber (Alexandria): It is indeed a privilege and a pleasure to be asked to discuss the paper of Dr. Sanders. To know Dr. Sanders is to appreciate him. The many things that he does, he

does well. He is constable of the town, he runs a big farm, he has an active country practice, and the most remarkable thing of it all to me is how a man who does so many things can accumulate the data and make such a detailed study, and become one of the authorities on malaria of not only Louisiana, of the South, but of the United States and of the world in the treatment of malaria,—that is a country doctor of Caspiana.

Dr. Sanders has brought out many interesting features. The incidence of malaria is more prevalent in the temperate and tropical seasons. In the subtropical area here where we live, where the land is flat, the soil maintains the moisture, holds it and keeps it from running off. The streams are sluggish; and all this offers an ideal breeding place for mosquitoes.

When we physicians treat malaria we should go further than curing the patient of this disease. We should do a little educational work. Teach him to screen his house, to keep his screens shut, which is most important. Many of us have seen houses that were screened but the screen doors were wide open. Teach him to destroy tin cans; to turn up the wash tub when finished washing.

The use of drugs began with the use of the bark of the cinchona tree, known as "Jesuits' bark" because of its introduction by the Jesuit priests. From this, we have isolated a large number of alkaloids, the principal of which is quinine, and its twin sister, quinidine. Both drugs have the same empirical formula, the same number of hydrogen-oxygen and carbon atoms, except that one is on the right hand, (dextro-rotary) which is quinine, and the other on the left, (levorotary) which is quinidine. All of the alkaloids of quinine seem to have an anti-malarial power. I wonder if there is not some substance which could be isolated from quinine, similar to the substance isolated from ergot, ergotamine, where a smaller dose is sufficient. I wonder if some day we won't be giving 1/32 of a grain of some form of quinine for the treatment of malaria?

Search has been made in recent years to find a substance which could be manufactured from cheaper substances and has resulted in the discovery of atabrine and plasmochin. Both have been valuable drugs; both have their drawbacks. Probably in a few years we will have a synthetic substance that is a specific against malaria.

THE TREATMENT OF MALARIA*

OSCAR W. BETHEA, M. D.
NEW ORLEANS

In this section of the country most of us are so accustomed to treating malaria ac-

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cording to the methods taught by Bass,⁴ Craig² and a few other "old masters" that it may prove interesting to review some of the work of the world at large. It is worth while to pause and consider whether or not we are justified in continuing our present plans of therapy, and if we are keeping pace with current knowledge in the management of this disease. In the recent past, reports from work done in the United States have been comparatively few and somewhat limited in extent.

The number of so-called specifics has increased markedly during recent years. Clark,¹ in his excellent review of the literature, discussed thirteen. My own studies included twenty-three. Most of the new additions have developed around atabrine. It is rather difficult to evaluate reports in foreign literature on most of these, as the same chemical agents may have different names in different countries.

In America, quinine, atabrine and plasmochin are used almost exclusively. Craig² states: "At the present time there are three drugs available for the treatment of these infections, each of which has a definite place in therapeutics, and, if used properly, they are sufficient to eradicate or cure possibly all malarial infections. These are quinine, plasmochin and atabrine." The Fourth General Report of the Malarial Commission of the League of Nations³ in the "Conclusions" states: "Among those drugs, quinine still ranks first in current practice, by reason of its clinical effectiveness and almost complete absence of toxicity, coupled with the widespread knowledge of its use and dosage. As regards the synthetic products, which have only been used in therapeutics for ten years, the Commission hopes that it has discharged the duty which devolved upon it by giving in this Fourth General Report an account of the present state of our knowledge regarding the possible use of atabrine and plasmochin in the treatment and prophylaxis of malaria. In certain circumstances, as has been shown above, these drugs—representing a notable scientific advance—possess a very special value."

TRENDS IN THERAPY

There seem to be several trends in the field of malarial therapy, as a result of many possible factors. A plan of treatment that would be best for a patient in a Louisiana hospital or a well-ordered home in this country, might not be practical in an outlying camp in the tropical jungles of Central America, or for the natives attending a dispensary in North Africa. Such factors must be considered as the probable cooperation of the patient; the facilities for carrying out a complete plan of treatment; the probabilities of infection and reinfection; the degree of acquired immunity of the people to be treated; and the cost in time and money.

THE STANDARD TREATMENT

In this country, specific therapy is largely confined to two routine procedures: (1) The standard treatment with quinine; that is, 10 grains of quinine sulfate three times a day for three days, or longer if necessary, to control clinical symptoms; then 10 grains of quinine sulfate each night for eight weeks, or longer if necessary, to render the patient free of the plasmodia; (2) atabrine, 1½ grains (0.1 gram) three times a day for five days. Recently there has developed a tendency to supplement both of these with a course of plasmochin.

Quinine acts slowly upon the gametocytes of all species of plasmodia and atabrine has limited effect upon the gametocytes of the *Plasmodium falciparum*. It is important to render the patient non-infectious to mosquitoes as promptly as possible and, as plasmochin will destroy the gametocytes of all the plasmodia, it is being used with increasing frequency. In this country, it is customary to give 1/6 grain (0.01 gram) two or three times daily for five days, during the second week of the quinine treatment or three days after the close of the atabrine treatment. It is not employed at the same time as atabrine as the two are toxic if used together.

I agree with the statement of Bass,⁴ "Quinine in the treatment of malaria is one of our best examples of specific drugs." Craig² is expressing the consensus of medi-

cal opinion in this country when he says, "Quinine is a true specific in the treatment of malaria and if administered in sufficient dosage over a long enough period of time it will eliminate malarial infection." In other words, when the patient is under sufficient control and suitably protected from mosquitoes it will meet all of the requirements of therapy. Where this plan has failed, it has been due probably to the patient's not taking the drug in the proper dosage for the proper length of time. Quinidine may be used when the patient has an idiosyncrasy for quinine.^{5, 6}

SHORT-TERM TREATMENT

The "short-term treatment" with quinine is receiving much attention, especially outside of this country. It is not new. It is as old as the use of the drug itself, but is being revived upon a scale that is hard for us to understand. We had thought that chapter closed by the development of the standard treatment by our National Committee for Malaria⁷ in 1919. The Malarial Commission of the Health Organization of the League of Nations, however, has given the weight of its endorsement to this therapy. It consists essentially of the administration of 1 gram (15 grains) of quinine for a period of from five to seven days, then discontinuing treatment. When the infecting organism is the *Plasmodium falciparum* the dosage is 1.3 gram (20 grains) and it is admitted that as much as 2 grams daily may be necessary at times to control the clinical symptoms.

Sinton,⁸ who is probably the leading champion of this plan of therapy, makes the following recommendations: "When infections are contracted by individuals resident under conditions in which the chances of reinfection, except at comparatively long intervals, are slight, the treatment of choice is one which will produce a radical cure of the infection at the earliest possible moment.

"When individuals are resident under conditions where they are exposed to frequent and to constant risk of infection, reinfection and superinfection, the object of treatment should be the rapid reduction or

the clinical cure of each attack and not a radical cure of the infection.

"When individuals are exposed only temporarily to chances of frequent infection and superinfection, then clinical prophylaxis of the disease with appropriate drugs is the procedure of choice."

The idea back of this plan of treatment, therefore, is to relieve the patient of the symptoms during each attack, in the hope that he will build up an immunity or at least a premunition to the disease. It is recognized that 25 to 50 per cent of relapses occur. What advocates of this treatment do not seem to recognize is the tremendous number of carriers that are kept in a community as filling stations for anopheles mosquitoes with the concomitant spread of the disease. Not only is the individual reinfected, but everyone else in the community is a potential victim.

Craig⁹ sums up the general medical opinion in this country when he states substantially that neither immunity nor premunition develops, that this treatment does not cure but a small percentage of cases, that it increases the number of carriers, perpetuates and spreads infection through increasing the number of infected mosquitoes, and inevitably leads to a full measure of disability, and death, especially in children.

As I understand it, the Fourth General Report of the Malaria Commission of the League of Nations³ is based to a large extent on the study of the results of this plan in 12,288 persons treated principally in Algeria, Sardinia, the Federated Malay States and in certain sections of Rumania and Russia. Not only environments, but the peoples themselves differ materially from those found in our section of the world.

The standard treatment was based not only on a large experience among our people, but particularly on a study of a group of over 30,000 patients treated under conditions and with facilities that were unexcelled.¹⁰ It constituted the largest clinical experiment ever carried out in malaria.

In reviewing the foreign literature on malaria for the past four years, I was much impressed, in fact rather bewildered by one

finding. In the hundreds of reports from Europe, Asia and Africa, quinine and many other drugs were reported as having been used in many and various dosages, but I found not one single reference to the standard treatment or one report on a group of patients treated by this plan. They seem to have ignored entirely the work done in this country.

The most interesting report on prophylaxis has been that of Castellani,¹¹ covering the Ethiopian campaign. Each soldier was given a 3 grain (0.2 gram) tablet of quinine three times daily and tests were made from time to time to determine if the drug was being taken. Among approximately 500,000 soldiers operating in an intensely malarious country, there were only 1,241 hospital admissions for primary malaria and 1,093 for relapses.

In the management of emergencies and in such phases of the subject as chronic malaria and mass treatment, nothing of interest seems to have been developed in recent times.

CONCLUSIONS

The number of specific agents for the treatment of malaria is constantly increasing but only three have been generally accepted in this country.

In the Old World the short-term treatment with quinine and with many new synthetics is the present fashion.

The reports in foreign medical literature on the treatment of malaria are far from convincing.

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DISCUSSION

Dr. J. P. Sanders (Caspiana): I feel a little hesitancy in following a man of Dr. Bethea's capability, but I am very interested in the subject, and, as most of you know, have used a great deal of quinidine. I originally started off on it because of a patient who had an idiosyncrasy to quinine.

The trend, it seems, toward the short course has been rather phenomenal in the last few years. I have not made any direct comparison with the long course, but the short course seems to work so well, that it seems the logical thing to do. In other words, you can get a patient to take quinine, or quinidine, or atabrine for four or five days. We realize that in the malarial districts in Louisiana, persons either do not get well or they become re-infected rather quickly. That, apparently, for the average patient means 17 per cent for the season, according to my work in 1937. It is rather interesting to follow statistics because you can prove anything with them. And it is interesting to know what the author means by a "cure," whether he means a 100 day cure or a permanent cure. I believe pretty strongly in the development of the patient's immunity. It explains a whole lot just what happens. We see families, with a great many in the family, and only one or two have malaria, sometimes for four or five years, and the rest will not have it. I personally have not had malaria since I have been here. I was born and reared in a malarious district in Texas, and had malaria every year till I was about 16 and I have not had it since—even though I have been bitten by mosquitoes many, many times.

The big trouble in so far as the carrier proposition is concerned is the gametes. Plasmodium, of course, is recommended by many. If we could tell what patients were carrying gametes, I think it would help solve the problem to get rid of malaria. But these showers of gametes come into the blood stream for some unknown reason, and thus, the mosquito is re-infected, and subsequently the patient.

A great many other drugs have been recommended for malaria. There is the new synthetic drug, sulfanilamide and its derivatives. I have stuck to the cinchona alkaloids largely, though I have treated 108 patients with atabrine and a few with sulfanilamide and sulfapyridine. But quinine and quinidine to me are probably still the safest in all cases. I have given quinidine to patients as you would quinine without any bad results. I

have given it to infants a few months old and to elderly people in the eighties. If many people used quinidine, the supply would run out; 100 times as much quinine is produced as quinidine. I think that atabrine has been given a black eye by some people who claim too much for it. They claimed that it would cure too high a percentage of patients, as much as 95-100 per cent. In my experience, there has been a strong similarity between the different drugs and the percentage of cures I have gotten. It was around 60 to 75 per cent for atabrine and the cinchona alkaloids.

Dr. Daniel W. Kelly (Oak Grove): My talk will be that of a country doctor. Malaria is being treated with atabrine in the country districts by the druggist. The physician prescribes the sixty day quinine treatment for malaria. A week later, after the patient stops his quinine, he is reinfected with malaria. He is dissatisfied. He talks with a neighbor who was sick about the same time and to whom the druggist sold 15 atabrine tablets. The patient who took atabrine had no relapse. Needless to state he will not go back to the doctor for more quinine.

I believe in atabrine and plasmochin in the treatment of malaria. If the doctor will provide for free elimination with Epsom salts during the course of the treatment there will be no unfavorable results. I even use atabrine as a therapeutic test in patients who have continued fever of undetermined origin.

Dr. Arthur A. Herold (Shreveport): In the early days of atabrine, there were many reports as to severe neuropsychiatric manifestations following its use. I would like to ask Dr. Bethea if those reports are still coming in?

Personally, I saw a patient, shortly after atabrine came in, who came to the hospital with a severe type of malaria—I have forgotten the form. He had taken two courses of atabrine and was still having fever. I gave quinine with good results. I presume the same thing would have happened if the patient had had quinine and I had given atabrine. Since then, I have stuck to quinine therapy.

I had an acute attack of malaria in 1918 and I followed the course of treatment as laid down by the late Prof. J. B. Elliott, Sr. I took 30 grains quinine daily for three days and then took 10 grains at night every week, preceding the chill day and 10 grains the following morning for six weeks. The cure was complete, as I have had no recurrence to this day. I feel that quinine, properly administered, will give satisfactory results.

Dr. Wm. W. Armistead, Jr. (Barksdale Field): One point I would like Dr. Bethea to answer in closing, and that is the question of pneumococcal pneumonia treated with sulfathiazol or sulfapyridine, which is complicated with malaria. I wonder which of the drugs he has mentioned, ata-

brine or quinine, he considers preferable in this sort of case?

Dr. Randolph Unsworth (New Orleans): Dr. Bethea's talks are always very interesting and stimulating. I have treated three cases of acute atabrine psychosis, but was unable to be definite as to whether the atabrine precipitated the psychosis or if the psychosis was a toxic one due solely to atabrine.

Dr. J. E. Knighton (Shreveport): In connection with the administration of atabrine, we frequently observe discoloration of the skin which calls for a differential diagnosis between staining of the skin by the drug and hemolytic jaundice due to malaria.

There is one dependable and reliable point of difference, the staining of atabrine never involves the sclerae, while this is one of the first tissues to show discoloration from jaundice.

Dr. Oscar W. Bethea (In closing): Answering the question of Dr. Herold relative to the neurotoxic status of atabrine—many unfavorable reactions have been reported but they are probably rather infrequent when we consider the large amount of the drug that is used. We must also remember the tendency of malaria itself to produce such evidence. A personal communication from the Superintendent of the Colon Hospital some years ago reported that they used atabrine exclusively in the treatment of malaria and had noticed no neuropsychic complications. I have handled one such patient personally and felt that there was no doubt as to the diagnosis. The consensus seems to be that toxic developments of atabrine are usually the result of overdosage and it is urged that the treatment not exceed 0.1 gram three times a day for five days.

With regard to the efficacy in malaria of the sulfonamide products, the majority of recent reports covering sulfanilamide indicate that it is practically valueless in the treatment of this disease. I understand that some work is being done in the East with other related products and that the results are most encouraging.

Regarding the combination of arsenic and quinine, formerly some of the Fruit Companies routinely employed sodium cacodylate with the quinine treatment. In the first edition of Beckman's "Treatment in General Practice", he recommended neoarsphenamine. Reports coming in from reliable sources in the past three or four years indicate that arsenic is rarely employed in the treatment of malaria.

Answering the question as to the high mortality among the narcotic addicts who develop malaria from the use of a common syringe, I observed several of these patients who were treated at Charity Hospital and had the privilege of discussing the presentation of Dr. Hull before the medical faculty of Louisiana State University. Most of these deaths occurred before the true condition was real-

ized. A dope addict would be found unconscious, would be taken to the police station and locked up for the night and the opportunity for medical service be lost. I understand also that in some of these cases, the malaria was treated but the accustomed opiate was abruptly withdrawn. This may have had an unfavorable effect upon the outcome.

With regard to the relative value of atabrine and quinine, I am reminded of one of my last meetings with Colonel Craig. We had attended a banquet in the Vieux Carre and were returning to our car. I had been trying to make him express his preference in regard to these two drugs. I finally stopped in front of a show window where I could observe his expression and said, "Colonel Craig if you were taken sick tonight with malaria which would you take, atabrine or quinine?" A look of patient surrender and resignation came over his fine face as he replied, "Dr. Bethea, I would take atabrine."

RENAL DAMAGE FOLLOWING THE USE OF SULFATHIAZOLE

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AND

TRAVIS WINSOR, M. D.†

NEW ORLEANS

When a new drug becomes widely used its therapeutic advantages are rapidly publicized but disadvantages and harmful properties are often learned slowly. Since the advent of sulfathiazole in 1939,¹ its toxicity has been in the process of evaluation, both experimentally and clinically. During the past two years of its use there have appeared reports of 23 patients who developed renal complications following the administration of the drug.²⁻⁹ In a previous paper¹⁰ six more patients were added to this series. In this report two others are added, bringing the total to 31. Certainly this does not represent or indicate the total number of patients who have sustained renal damage from the use of this therapeutic agent. Many instances of renal complications go unrecognized because of the lack of sufficient study, and awareness of the condition. The purpose of this report is to describe two more patients, who have suf-

fered renal damage from sulfathiazole, to describe the clinical and pathologic syndrome, to outline preventive measures, and to describe the treatment of the complications once they occur.

From numerous experimental studies much has been learned about the mechanism of the production of the renal damage and its management. A review of these observations is beyond the scope of this report, as the subject has been reviewed previously.¹⁰

The patients who sustained renal damage usually presented hematuria (gross or microscopic), oliguria, renal pain and impairment of renal function which usually progressed rapidly to uremia. At autopsy, the kidneys were found to be enlarged grossly; there were marked striae running from the cortex to the pelvis and crystals were found within the nephrons and pelvises. The capsule usually stripped easily. At times the trigone of the urinary bladder was congested and crystals could be found in this region. Microscopically there was hydronephrosis of the tubules and the pelvises. The tubules and Bowman's capsule were markedly dilated. The acetyl derivative of sulfathiazole was usually absent in the lumina of the tubules of hematoxylin-eosin preparations (fig. 1). This material was found to be present in great abundance in the tubules in frozen section, completely filling the lumina (fig. 2). Erythrocytes were also found in Bowman's spaces, the tubules, and pelvises. There was swelling of the glomeruli with an increase of cement hyaline substance. Focal areas of peritubular leukocytosis and tubular necrosis were noted throughout the renal parenchyme. The conjugated sulfathiazole concretions in the tubules and pelvises polarized light (fig. 3).

The mechanism of the renal damage is not clear. Anatopol and Robinson¹¹ attribute the damage to: (1) ureteropelvic hydronephrosis or tubular hydronephrosis depending upon the site of the obstruction produced by the concretions of the sulfathiazole derivative, and (2) to toxic effects produced by the sulfathiazole on the renal parenchyme independent of obstruction. In

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fact, they believe the latter may even predispose to crystal formation.

Sulfapyridine produces renal damage similar to that described for sulfathiazole. Sulfanilamide very rarely produces renal injury. Wood¹² reported a patient who developed renal damage subsequent to an acute hemolytic anemia following sulfanilamide administration. The convoluted and collecting tubules were filled with pigment which stained positively for iron. This type of renal damage occurs in blackwater fever.

Sulfathiazole is rapidly absorbed from the gastrointestinal tract, produces variable blood levels, and acetylation is limited. It is excreted rapidly by the glomeruli and reabsorption by the tubules is poor because of its relative insolubility in urine. Sadusk, Blake, and Seymour¹³ found that a 4.2 gram oral dose in an adult male results in a peak in blood level of 9 mg. per 100 c. c. in three hours. These authors found that 40 per cent of the drug was excreted in six hours and 70 to 80 per cent in 24 hours. Because of the rapid and variable absorption it is necessary to check the blood levels often, particularly when renal function is impaired initially. Carroll, Kappel, and Lewis¹⁴ stress the need for controlling the blood level in order to control the pharmacologic and toxic effects of the drug. These observers state that a blood level of 5 mg. per 100 c. c. is safe and therapeutically effective. Rammelkamp and Stoneburner¹⁵ found that 2 to 4 grams of sulfathiazole daily were sufficient to sterilize the urine in patients with mild urinary tract infection. Culp³ believes that large doses predispose to renal injury.

The degree to which sulfathiazole is acetylated will have some bearing on the extent of urolith formation as the acetyl form is very insoluble. Acetylation of sulfathiazole is slight and variable, 0 to 30 per cent, with a mean of about 12 per cent.¹³ In patients with congestive heart failure and renal damage, acetylation is increased as well as is the sulfathiazole blood level. The average dosage may be followed by a level of 15.9 mg. per cent. This is said to be due to the prolonged recirculation of the drug through the liver.

The following patients illustrate some of the points discussed above and also bring out some of the problems of diagnosis, prevention, and treatment.

CASE NO. 1

M. P., a 52 year old white American housewife entered Charity Hospital on January 5, 1942, complaining of epigastric pain of two weeks' duration. The patient had been well previous to December 22, 1941, at which time she developed precordial pain, signs of congestive heart failure, and on one occasion, she vomited one tablespoon of blood. On admission, the temperature was 98.6° F.; pulse rate 110 per minute; respiration rate 20 per minute; and blood pressure 130 mm. mercury systolic and 90 diastolic. The positive findings only are recorded. The neck veins were distended. The chest revealed scattered, crepitant rales bilaterally. The heart was enlarged to percussion to the right and left anterior axillary lines. There was auricular fibrillation. There were no murmurs, thrills, or friction rubs. The liver was palpable four centimeters below the right costal margin. There was slight edema of the extremities.

On January 6, 1942, the blood examination revealed a moderate leukocytosis. The urine was repeatedly acid and had a specific gravity of 1.030 with three plus albumin, 5 to 10 erythrocytes per high powered field. The Kolmer and Kline tests were negative. The electrocardiogram showed auricular fibrillation, and right bundle branch block. X-ray of the chest showed cardiac enlargement to the right and left, prominent pulmonary conus, and chronic passive congestion of the lungs. The right anti-cubital venous pressure was 230 mm. of water and the decolin circulation time was 36 seconds. The patient was digitalized rapidly by Eggleston's method. On January 10, 1942, she complained of pain over the right lower chest and coughed up 3 c.c. of bloody sputum. Physical examination of the chest revealed bronchial breathing, dullness to percussion and subcrepitant rales over the right hemithorax posteriorly. On the evening of January 10, 1942, sulfathiazole was administered orally in doses of 2 grams immediately and 1 gram every four hours for six doses, to be followed by 1 gram every six hours. Nine grams were given in all. No sodium bicarbonate was given. The fluid intake and output were recorded as follows:

Date	Intake Output	
	c.c.	c.c.
January 5, 1942.....	480	175
January 6, 1942.....	480	445
January 7, 1942.....	240	250
January 8, 1942.....	1720	420
January 9, 1942.....	1600	700
January 10, 1942.....	1465	550
(Sulfathiazole started)		
January 11, 1942.....	500	1070*
January 12, 1942.....	425	300*

*(catheterized)

On January 11, 1942, the patient had difficulty voiding and 300 c.c. of urine were obtained by catheter. A thoracentesis was done and 4 c.c. of bloody fluid were removed. On January 12, 1942, she was again catheterized and again bloody urine was obtained. There was no microscopic evidence of sulfathiazole crystals in the urine. The patient expired on the afternoon of January 12, 1942.

NECROPSY FINDINGS*

The autopsy findings revealed a right hydrothorax, pulmonary infarction, mitral stenosis, cardiac enlargement and chronic passive congestion of the abdominal viscera. The kidneys weighed 200 grams each. The capsules stripped with ease revealing a swollen, congested, smooth red surface. The cortex measured 7 mm. The line of demarcation between the cortex and medulla was indistinct. The mucosa of the calyces, pelves, and ureters was congested. Yellow, gritty granules were seen in the pelves and ureters. A probe could be passed into the ureters and bladder without difficulty. There was no evidence of extra-renal urinary obstruction. The urinary bladder was congested and hemorrhagic, being most marked in the region of the trigone.

Microscopically, (fig. 1, 2, 3, 4) the kidney capsule was of normal thickness. An occasional scar was present at the cortical surface within which there was some lymphocytic infiltration. The glomeruli were generally enlarged and swollen and showed dilatation and congestion of the capillaries. The convoluted tubules showed cloudy swelling, mild dilatation and desquamation. The intertubular capillaries were markedly congested. No sulfathiazole crystals were seen (fig. 1).

Sections of kidney were fixed in formalin for 24 hours and frozen sections revealed no crystal formation when viewed with the regular and polarizing microscope, (fig. 4). Fresh unfixed frozen sections showed masses of crystals in the collecting tubules, particularly just proximal to the papillae (fig. 3). These definitely polarized. Sections of the liver and spleen showed elements within the sinusoids which polarized.

COMMENT

The onset of renal damage was typical. It began suddenly 34 hours after beginning the administration of the drug and after only 9 grams had been given. There was only hematuria, no casts or crystals of sulfathiazole were found. The renal function was not examined nor was the blood urea nitrogen determined. The patient died

rather suddenly. Renal damage was favored by several factors:

(A) The patient was dehydrated because of: (1) vomiting; (2) insufficient administration of fluid, and (3) congestive heart failure which was progressing. Curtis and Sobin¹⁶ found that a 2000 c. c. of urine output daily is necessary to prevent the formation of acetyl sulfathiazole crystals in acid urine for a 2 gram daily intake and that a 6,000 c. c. output is necessary for a 6 gram intake. With an alkaline urine a 1,250 c. c. and a 3,750 c.c. output daily would be necessary for doses of 2 and 6 grams daily intake respectively. On the day of administration of sulfathiazole, she excreted only 550 c. c. of acid urine.

(B) The acid urine being excreted by the patient predisposed to urolith formation (*vide supra*).

(C) The congestive heart failure and possible preexisting renal damage by increasing acetylation of the sulfathiazole, the highly insoluble conjugated form, likewise, predisposed to urolith formation and renal injury.

(D) The above three factors predisposed to tubular obstruction rather than ureteropelvic obstruction. Tubular obstructions often follow the use of small amounts of the drug administered in the usual manner.

The histologic picture described and illustrated above is typical. Figures 1 and 2 illustrate how important it is to make frozen section preparations of the kidneys before fixing if the crystals are to be demonstrated. Figure 3 shows the value of polarization of light by the crystals in identifying them. Figure 4 illustrates the absence of crystals in frozen sections of formalin fixed kidney tissue, showing that the crystals are dissolved away early in the process of making stained tissue preparations for histologic study.

CASE NO. 2

I. J., a 54 year old white American male, entered Charity Hospital on January 10, 1942, complaining of cough of ten days' duration. On January 1, 1942, he developed an upper respiratory tract infection followed in six days by congestive heart failure. The family doctor stated that he

*We are indebted to Dr. Joseph Ziskind of the Department of Pathology of Tulane School of Medicine for the pathologic interpretations of these findings.

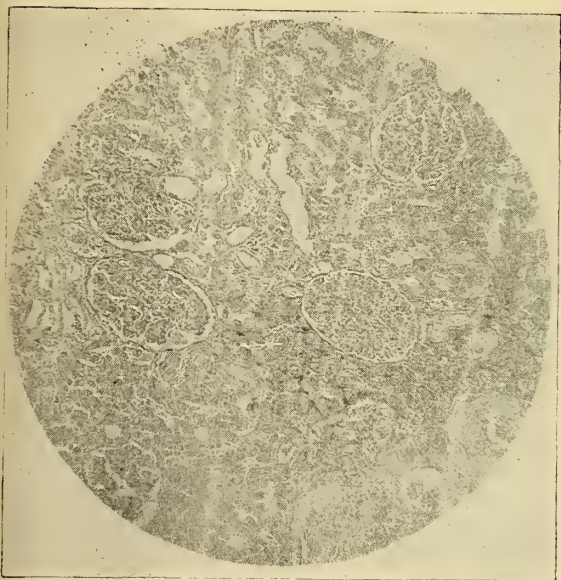


Fig. 1. A hematoxylin-eosin preparation from the kidney of patient number 1, which was prepared by the standard paraffin method. No sulfathiazole crystals were seen with the regular or polarizing microscope.



Fig. 3. Sulfathiazole crystals in the kidney as seen using unfixed tissue prepared by frozen sections and using polarized light. The crystals are easily seen. The tissue is from patient number 1.

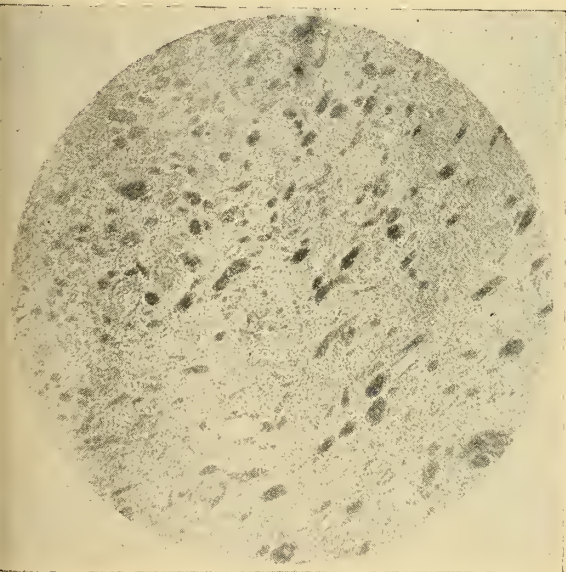


Fig. 2. A frozen section of fresh unfixed kidney tissue from patient number 1 with sulfathiazole concretions completely filling the lumina of the tubules.

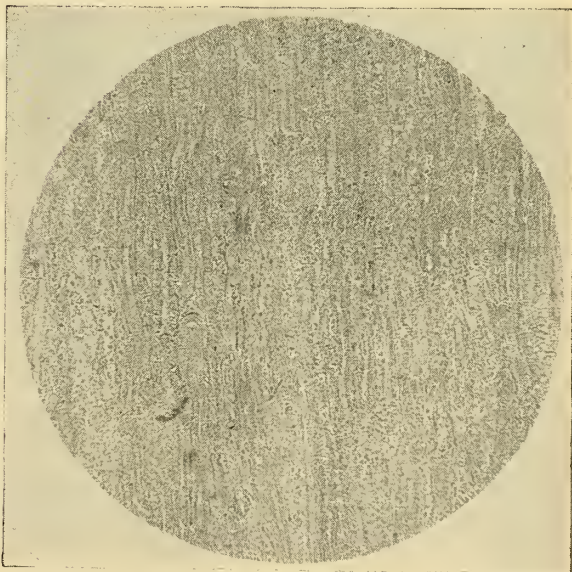


Fig. 4. A frozen section of a portion of formalin-fixed kidney from patient number 1. There is no evidence of crystals of sulfathiazole in the lumina of the tubules, the crystals having been dissolved during fixing.

had previously had an interstitial nephritis. He thought he had not taken sulfathiazole previously.

On admission, the temperature was 99° F.; pulse rate 110 per minute; respiration rate 30 per minute; and blood pressure 160 mm. of mercury systolic and 100 diastolic. There was dulness to percussion and rhonchi at the left base. Dry, sonorous rales were heard throughout the chest bilaterally. The point of maximum impulse was felt 3 cm. beyond the left mid-clavicular line. There was no edema of the extremities.

On January 10, 1942, there was a mild anemia, and a leukocytosis of 20,000, with 81 per cent polymorphonuclear cells. The urine was acid, specific gravity 1.018, and contained no albumin, casts or erythrocytes. The sputum was normal. Kline and Kolmer tests were negative. X-ray of the chest showed moderate enlargement of the cardiac shadow, passive congestion of both lungs and fluid at the left base. The electrocardiogram was normal.

On January 10, 1942, he was given sulfathiazole orally in dosage of 2 grams immediately, 2 grams in two hours and 1 gram every four hours thereafter. Hypertonic glucose, aminophyllin, digitalis, ouabain, phenobarbital, ephedrine sulfate, and ammonium chloride were administered in the subsequent four days. On January 12, 1942, the blood sulfathiazole level was 20 mg. per cent. On January 14, 1942, gross hematuria was noted. On examination the urine was packed with red cells and contained 3 plus albumin. In the preceding four days the patient had received 9 grams of sulfathiazole and 2 grams of ammonium chloride. The average fluid intake during this time was 600 c.c. a day. The blood urea nitrogen was 34 mg. per cent, creatinine 3.2 mg. per cent, carbon dioxide combining power 32 volumes per cent and the blood sulfathiazole 21 mg. per cent. The sulfathiazole and ammonium chloride were stopped following the appearance of hematuria, and the urine was alkalized, using 2 grams of sodium bicarbonate three times daily. Fluids were forced and caffeine sodio-benzoate was given to initiate diuresis. On January 16, the blood urea nitrogen was 57 mg. per cent, creatinine 4.5 mg. per cent, carbon dioxide combining power 40 volumes per cent, and the blood sulfathiazole 4.4 mg. per cent. No crystals were seen in the urine. At this time he was cystoscoped and no urethral obstruction was found. The trigone was not inflamed and the ureteral orifices were patent. Inlying ureteral catheters were passed into each pelvis and clear urine was obtained from each side. Indigo carmine was not injected. The catheters were left in place and the pelvises were irrigated with warm, normal saline day and night. Fifty per cent dextrose was given intravenously and diathermy applied to the kidney region. For the three days preceding his death, the urine output was 1700, 1500, and 1200 c.c. daily. Erythrocytes were present in all specimens. On

January 20, the temperature rose to 105.5° and the patient expired.

NECROPSY FINDINGS

The left kidney weighed 230 grams and the right 170. The left kidney was polycystic and extended from the diaphragm superiorly to the brim of the pelvis inferiorly. A single cyst at the superior pole measured 5 cm. in diameter; the four or five remaining cysts were smaller. The main body of the organ was contracted and somewhat granular. The capsule was thickened and could not be stripped. The cut surface was red and edematous and the line of demarcation between the cortex and medulla could not be defined. The tubules were not visible grossly and no crystals were seen in the kidney parenchyma or in the renal pelvis. The right kidney was contracted and scarred and was similar to the left with the exception that localized areas of purulent material were seen on sectioning. The pelvis contained 3 c.c. of purulent exudate which was free of crystals. Microscopic examination of the pelvic contents revealed clumps of leukocytes, an occasional erythrocyte but no sulfathiazole crystals.

Hematoxylin-eosin sections of the kidneys revealed thickening of the kidney capsule and a generalized interstitial infiltration with polymorphonuclear and lymphocytic cells. Numerous circumscribed areas of leukocytosis were located in the cortex and medulla, particularly in the right kidney. There was extreme medial thickening of the arterioles and interlobular arteries. The tubules were markedly dilated and were filled with polymorphonuclear cells and erythrocytes. Some of the glomeruli showed obvious thickening of Bowman's capsule. The glomerular basement membrane was notably thickened and an occasional hyalinized glomerulus was present. In some of the scarred areas colloid casts were found within the tubules. No crystals were seen in these sections. Frozen sections of formalin fixed tissue were made of the liver, spleen, and kidney. The sulfathiazole crystals were seen with either the regular or polarizing microscope. Frozen sections were then made of unfixed tissues and typical crystals were seen in the kidney (fig. 5). Polarizing bodies were seen in the liver and spleen.

COMMENT

In the second patient, the soil was well laid for the production of sulfathiazole nephritis. An elderly man with a previous history of renal disease and with symptoms of nocturia entered the hospital with congestive heart failure. These factors as well as the poor intake of fluids lead to retention of the drug with increased acetylation of the drug in the liver. As the acetyl form is only one-tenth as soluble as the free form,

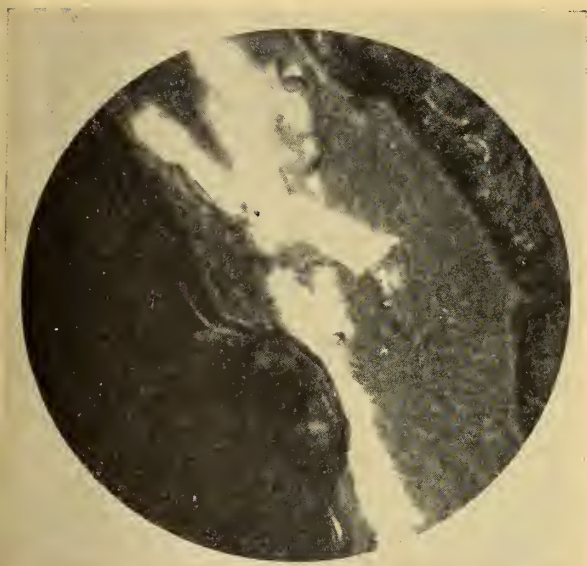


Fig. 5. Sulfathiazole crystals in a kidney tubule prepared by unfixed frozen section and viewed through the polarizing microscope. The tissue is from patient number 2.

the likelihood of crystal formation in the tubules was increased. The administration of ammonium chloride was contraindicated as the acetyl sulfathiazole crystals are much less soluble in acid urine as previously stated. From the data it is impossible to know if this patient had his acidosis and elevated blood urea nitrogen before sulfathiazole was given, or if this was the result of sulfathiazole administration. If there was a question of the state of the kidneys or of his blood acidity, a carbon dioxide combining power and blood urea nitrogen should have been determined before the drug was administered. Patients developing sulfathiazole nephritis frequently follow the sequence of drug, hematuria, and oliguria. Although hematuria and oliguria are usual, they are not always present. A rising blood urea nitrogen is helpful in diagnosis.

This patient was treated by intensive irrigation of the ureters and pelves using normal saline and by intensive diuresis. In spite of these measures, crystals of sulfathiazole were found in the tubules of the kidney (fig. 5) even though the drug had been stopped for four days and in spite of

the intensive diuretic measures. Furthermore, the chronic renal disease, polycystic kidney, pyelonephritis, and arteriosclerotic disease, all predisposed to interference with the elimination of the drug and likewise favored crystal formation.

DIAGNOSIS

The diagnosis of renal damage is not difficult if the patient has been properly studied before and during treatment with sulfathiazole. The appearance of hematuria, oliguria, backache, renal colic, tenderness over one or both kidneys, progressive nephromegaly, decreasing renal function and azotemia in a patient who is receiving sulfathiazole should make one suspect renal damage. Rarely do all of these findings exist simultaneously. The presence of one of the findings alone or any combination of them is sufficient for a tentative diagnosis. Cystoscopic examination will usually establish the diagnosis. Crystalluria (sulfathiazole) may aid in establishing a diagnosis, but the mere presence of crystals in the urine does not indicate renal injury. Furthermore, it should be remembered that renal damage will occur when the previous doses were small or the blood level low. If the renal state is carefully studied and an estimate of renal function made before treatment is started, and renal function is religiously observed from day to day, renal damage can be detected very early.

PROPHYLAXIS

The prevention of injury to the kidneys by sulfathiazole is not difficult if certain rules previously described¹⁰ are followed. They are: (1) Determine whether or not the patient has had any one of the sulfonamide drugs before. If the history is not reliable then it is advisable to determine the blood level and prescribe accordingly. This will tend to prevent overdosage and reduce the likelihood of injuring the kidneys.

(2) Evaluate the state of the patient's renal function and the nature of the urine being excreted before administering the drug. In the presence of impaired renal function there is a greater chance for overdosage and renal damage. Furthermore, in-

fectious states, for which the drug is used, will in themselves produce renal changes with casts, erythrocytes, and albumin in the urine. It is, therefore, necessary to know whether or not findings in the urine following the use of sulfathiazole are due to the drug or previously existing infection. In the presence of marked renal damage proceed carefully with the drug, check the urine frequently, and determine the blood sulfathiazole level often. Should hematuria develop or renal function definitely decline, stop the drug immediately. Do not allow the blood levels of the drug to increase above accepted therapeutic values. In some instances, it might be well to determine the blood levels of urea nitrogen or total non-protein nitrogen before giving sulfathiazole to patients who have evidences of impaired renal function determined by urea clearances, concentration tests, and the like. Such determinations will aid in supporting other findings in the future, especially if renal complications are suspected. Palpate for the kidneys before and during the use of the drug.

(3) The hydration of the patient should be evaluated. A markedly dehydrated patient will take in a great deal of fluid and excrete very little and therefore, will be more likely to experience renal damage. Chart the fluid intake and output and make sure that the urine output is of good volume before and during the use of the drug. Curtis and Sobin¹⁶ have shown that 2,000 c. c. of urine output daily are necessary to prevent the formation of acetyl sulfapyridine crystals in acid urine of low specific gravity for a 2 gram daily intake and that 6,000 c. c. are necessary for a 6 gram daily intake. Once oliguria develops in spite of a large fluid intake the drug should be stopped. If for any reason the urine volume cannot be kept up to high levels then do not use sulfathiazole, but sulfanilamide.

(4) There is some disagreement among observers as to the influence of the pH of the urine on the incidence of renal damage (*vide supra*). Since some believe that an alkaline urine tends to reduce crystal formation¹⁶ and if the use of alkalies and an

alkaline urine are not contraindicated in a particular patient, then it would be well to administer alkalies and maintain an alkaline urine. Do not employ acid forming drugs such as ammonium chloride.

(5) There is some evidence to indicate the development of hypersensitivity to the sulfonamides.¹⁷⁻¹⁹ It is well, therefore, to be extremely cautious and particularly vigilant in the treatment of patients who already suffer from a form of allergy. Patients who have recently received a sulfonamide drug may have been sensitized to such drugs and will react allergically if given another course of one of them.¹⁷ It is better, if there is no need for haste, to give these two types of patients about one-third of a gram of the drug by mouth and wait twelve hours. If no unfavorable reactions result, then proceed with the treatment. Such a procedure should also be employed, if possible, in all patients so as to eliminate unpredictable severe reactions that occur because of idiosyncrasy to the sulfonamides.

TREATMENT

The drug should be stopped immediately once the slightest evidence of renal injury is discovered. Fluids should be administered in large quantities. The pelvis should be catheterized and the catheters should remain in place until a normal flow of urine has been reestablished. The pelvis should be irrigated every two hours with warm (107° F.) sterile distilled water. This procedure will relieve ureteropelvic obstruction but will have no effect on tubular obstruction. The latter should be treated by an intense diuretic regimen.

The diuretics should be large quantities of fluid, and, if indicated, hypertonic glucose solution. Mercury and acid diuretics should not be used. The urine should be kept alkaline with sodium bicarbonate and the patient should be given an alkaline ash diet. The protein intake should be restricted for four to five days or during the period of oliguria, hematuria, and azotemia and then the protein intake should be limited to 1 gram per kilogram of body weight until the renal function has returned to nor-

mal. The urine output should be maintained at a high level for many days after renal function has returned to normal.

It is not known whether or not the renal damage is permanent. Studies in experimental animals indicate that the damage may be either irreversible or reversible. There are no studies in which patients have been followed sufficiently long to throw light upon this problem. Some of the patients have had severe impairment of renal function and following proper therapy, have returned to normal as determined by clinical and laboratory methods over a comparatively short period of time.¹⁰ Such patients should be studied carefully from time to time for months, and even years, to make sure there is no residual or latent damage. Such changes may become manifest later as a chronic disease. Any changes in the renal state should be treated accordingly.

SUMMARY

The pharmacologic, toxic, pathologic, and clinical aspects of sulfathiazole therapy in light of resultant renal injury have been discussed briefly. Two patients have been presented to illustrate these points.

Frozen sections of fresh kidney tissue should be made in all patients who have received sulfathiazole in order to demonstrate the sulfathiazole concretions in the tubules because the drug may be dissolved early (during fixation of the tissues in formalin) or in the process of fixing the tissues for staining and histologic study. The property of polarization of light by the deposits of the sulfathiazole derivatives in the frozen sections may be used to aid in identifying the drug *in situ*.

Five preventive measures have been outlined to reduce the likelihood of renal damage from sulfathiazole therapy.

The treatment of renal injury produced by sulfathiazole has been discussed. The drug should be stopped immediately and fluids should be forced in an attempt to insure a large urinary output to dissolve the sulfathiazole crystals. These are the two most important immediate therapeutic procedures. The pelvis of the kidneys

should be catheterized and irrigated with warm sterile distilled water. Such irrigations will only remove crystals in the pelvis and obviously will not dissolve any of the crystals blocking the tubules. The diuresis produced by forcing fluids will have the latter action. Acidifying diuretics especially should not be used.

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ARSENICAL ENCEPHALITIS DURING PREGNANCY

WITH A REPORT OF TWO FATAL CASES

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The tremendous campaign to eradicate syphilis conducted in this country during the past decade has frequently been described as America's greatest contribution to preventive medicine. It is now generally conceded that the vanguard of the attack should strike at syphilis in pregnancy. The reason for this is threefold. First, it would result in maternal benefit from the diagnosis and treatment of her condition. Second, the institution of antiluetic therapy early in pregnancy would eliminate syphilis as a factor in premature labor and fetal death. Third, and most important, adequate therapy of every syphilitic prenatal patient would prevent the birth of congenitally luetic babies and, this potent source of syphilis would, with reasonable certainty, soon be stamped out. Laws have been enacted in many states which make a serologic test for syphilis mandatory in the case of every pregnant woman. Louisiana is among the twenty-one states having this legislation.

The advantages derived from the adequate treatment of syphilis in pregnancy are so obvious and the disadvantages so obscure, that it seems possible that the dangers of indiscriminate arsenical therapy in pregnancy have not been stressed sufficiently. Experiences at the New Orleans Charity Hospital support this contention. During a recent sixteen-month period there occurred a total of 21 maternal deaths, two of which were due to acute hemorrhagic encephalitis resulting from arsenical injections for syphilis. Thus antiluetic therapy was responsible for 9.5 per cent of the maternal deaths during the period. It would appear of value, therefore, to report in

some detail two fatal cases of hemorrhagic encephalitis resulting from arsenical therapy in pregnancy.

CASE NO. 1

L. S., a colored woman, 22 years of age, was first seen in the out-patient prenatal clinic at the Charity Hospital in New Orleans on February 2, 1940. The history and examination revealed the patient to be approximately in the twenty-sixth week of gestation. No abnormalities were noted. Routine blood serology drawn at this time was reported to be positive on Wassermann and Kline tests. The tests were repeated and were again found to be positive. A searching history and a careful physical examination failed to bring out any evidence suggestive of congenital or acquired syphilis in the patient.

On February 9, the patient received 0.3 gram of neoarsphenamine intravenously and 0.26 gram of bismuth subsalicylate in oil intramuscularly. The medication was repeated on February 23 and again on March 1. Urinalysis on each occasion was negative. There was no history of reaction following the first two injections.

The patient was brought to the hospital in a semi-comatose condition on March 4, 1940, three days after the last injection of neoarsphenamine. Her relatives stated that shortly after the last injection the patient had developed wheals about the face which itched intensely but disappeared in twenty or thirty minutes. During that night the patient complained of severe headaches and chills. The headache persisted throughout the following day and the patient became highly agitated and irritable. Her condition became progressively worse and on the night of March 3 she became disoriented and required restraint.

On admission the findings were as follows: Blood pressure 118/78; pulse 90; temperature 99°; respirations 18; unequal pupils with right larger than the left, but both reacted to light; bilateral Hoffman; bilateral ankle clonus; and positive Babinski.

Laboratory work at this time revealed the following: Red blood cells 4,130,000; hemoglobin 13.5 grams; white blood cells 11,150; polymorphonuclears 79 per cent; lymphocytes 20 per cent; eosinophils 1 per cent. Blood non-protein nitrogen 25; sugar 133; CO₂ 32; uric acid 4; calcium 5.6. The spinal fluid was under normal pressure and was negative for organisms on culture. The cell count was 10, with no red blood cells present. The gold curve was flat and indicative of encephalitis.

The patient soon developed tremors of the extremities and carpal spasm, twitchings of the neck muscles and jerky movements of the head. Treatment consisted of sedatives, spinal taps and intravenous hypertonic glucose solution. The patient became quiet, with decrease of strength of tremors and she began to assume the position of extreme opisthotonus without rigidity of the neck. The

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neurologic consultant believed the case to be a toxic encephalomyelitis of arsenical origin.

Death occurred 24 hours following hospital admission and 88 hours after she received her last dose of neoarsphenamine. Shortly before death an antemortem cesarean section was done and a living 4½ pound female infant obtained.

An autopsy was performed: The liver and kidneys were normal. The brain weighed 1220 grams. The dura and pia-arachnoid were intact, and showed no evidence of inflammation. There was no asymmetry of the cerebral hemispheres. The sulci and gyri were of normal width. The basilar arteries were patent and free of atheromatous plaques. The cerebellum and pons were normal. The cut sections revealed many dark red, petechial-like areas in the white matter of both hemispheres. The ventricles were not dilated and contained water-white fluid. The pituitary gland measured 1.8 x 1 x 1 cm. It was grossly normal. Microscopically, there was atrophy and edema of the white and gray matter of the cerebrum. Occasional areas in the white matter contained extravasated red blood cells. The blood vessels were dilated and some contained hyaline thrombi. Around a few blood vessels polymorphonuclear leukocytes and macrophages were noted. A slight granular endophthalmitis was present. Concentric reddish purple bodies were seen in the choroid plexus. The pons was normal. There was slight fibrosis of the meninges.

CASE NO. 2

Mrs. G. C., a 26 year old white patient registered in the prenatal clinic at the Charity Hospital in New Orleans on May 22, 1941, in the thirtieth week of her third pregnancy. Positive serology was noted on this occasion and again on June 6, after the test had been repeated. Recent syphilitic infection is probable because Wassermann tests were negative on three previous hospital admissions, in 1933, 1938 and 1940. The blood tests of her husband and two children were negative.

The antisymphilitic therapy consisted of intramuscular injections of bismuth subsalicylate, 0.13 gram, on June 12, and again on June 26, 1941. She was then given neoarsphenamine 0.3 gram and bismuth on July 3, and neoarsphenamine 0.45 gram and bismuth on July 10. The blood pressure and urine were normal on the day of each injection. There was no evidence of intolerance following the first three injections.

The patient was admitted to the hospital in active labor on the night of July 13. She was mentally competent but complained bitterly of headache and dizziness which had persisted since the last injection of neoarsphenamine three days previously. Physical examination revealed nothing abnormal. The blood pressure was 112/80; urinalysis negative; no edema. There was no rash. Following a nine hour labor, spontaneous delivery of a normal eight pound infant occurred. During the delivery light anesthesia of nitrous oxide and oxygen was

given for a period of about ten minutes. The patient was very drowsy following delivery and appeared mentally confused.

During the following day the patient became stuporous. Blood pressure was 120/90; temperature 100°; pulse 120. Urinalysis was negative. Muscle twitching could be noticed in the extremities but there were no tonic or clonic contractions present. No jaundice was noted. The pupils were unequal with the right dilated. Ophthalmoscopic examination showed no choking of the discs and there were no retinal hemorrhages or exudates. The biceps, triceps and patellar reflexes were exaggerated. The Gordon, Oppenheim and Babinski reflexes were positive. The hemoglobin content was 9 grams; the red blood cells numbered 3,250,000, the white blood cells numbered 5,100. The differential count showed 86 per cent polymorphonuclears, and 14 per cent lymphocytes. Blood total non-protein nitrogen was 27, the CO₂ combining power 31, blood sugar 120, and uric acid 3. The spinal fluid was clear and under normal pressure. The curve was suggestive of encephalitis.

Our therapeutic effort consisted of intravenous hypertonic glucose, repeated spinal taps, epinephrine and oxygen. Intravenous sodium thiosulphate also was used but proved of no value.

Her condition grew progressively worse and she expired about 96 hours after delivery. Shortly before death the patient had a generalized convulsion.

An autopsy was performed. The pathology report is as follows: Liver—some fatty changes, but not arsenical. Kidney—cloudy swelling, toxic changes. Brain—hemorrhagic changes of arsenical encephalitis; extremely marked hemorrhage in the pons.

COMMENTS

These cases show close similarity in many respects. Positive serology was the only complication. In accord with the usual insidious nature of the disease in females, a history suggestive of primary, secondary or tertiary infection could not be elicited. In both instances arsenical therapy was first instituted late in pregnancy and reaction occurred only after several weeks of minimal arsenical therapy. Moreover, the symptomatology, neurologic manifestations, clinical course and lack of response to therapy were identical. Finally, the autopsy reports revealed similar pathologic lesions.

It is of further interest to note the fate of the infants. Both patients were delivered of live babies in whom no evidence of congenital syphilis was found. Whether the infant salvage is the result of the relatively small amount of arsenical therapy we are

not prepared to say. It is our opinion, however, that definite fetal benefits accrue when judiciously graded arsenical therapy is administered even in the event that prenatal syphilis is not recognized until shortly prior to term. If the diagnosis is made after the thirtieth week of gestation we believe that best results are obtained when an arsenical preparation, preferably mapharsen, and bismuth are used concurrently.

Incidentally, recent experiences of the pediatric service of Charity Hospital emphasize that arsenical therapy of congenital syphilis in young children is not without danger. Everhart¹ reports five cases of hemorrhagic encephalitis with fatal termination following the oral administration of stovarsol to children.

DISCUSSION

In a most comprehensive review of the problem Glaser, Imerman and Imerman,² in 1935, reported from the literature and from their own experience 158 cases of hemorrhagic encephalitis following intravenous injections of arsphenamine. There was approximately one death due to central nervous system involvement in every 5398 cases treated and in every 28,768 injections. In this series there was a remarkable similarity in the histories and clinical findings of the cases. They found that 40 per cent of the patients were 20 to 30 years of age. One of the striking features brought out in the analysis was the fact that most of the patients suffering from the condition were having their first experience with arsenic and that comparatively little of the drug had been used. In 53 per cent, 0.05 to 1.1 gram was injected before the onset of symptoms while another 30 per cent received from 1.10 to 2.1 grams. Fifty per cent of the patients had received but two doses of arsphenamine before the onset of symptoms. Eighty-five per cent had symptoms within 72 hours after the last injection, while 31 per cent had symptoms within one to 12 hours. Death occurred within three days in 48 per cent, and 80 per cent had convulsions. Although 40 per cent of the patients in this series were females, no mention is made of an associated pregnancy.

Ingraham,³ in 1939, in a critical analysis of 42 cases of maternal death following antisyphilitic therapy during pregnancy, brought out many interesting facts. Almost two-thirds of the deaths were due to acute hemorrhagic encephalitis. The age of the patient and her parity apparently have little influence on the fatal termination. It is significant, however, that at the onset of therapy the physician was concerned with primary or secondary infection in 38 per cent of cases, while in only 19 per cent was the infection known to be more than four years old. Perhaps the most striking feature of the entire analysis is the revelation that 81 per cent of the fatal treatment reactions were precipitated by three or less arsenical injections.

INCIDENCE

The hazards of antiluetic arsenical therapy in pregnancy are still not settled. A Cooperative Clinical Group⁴ recently studied the pooled records of five large syphilis clinics and from this evidence conclude that the pregnant syphilitic woman tolerates arsenical treatment as well, or better than, the non-pregnant individual. Stander⁵ states that his experience is similar. Plass and Woods,⁶ on the other hand, believe that a pregnant woman probably is more susceptible to the deleterious, as well as the beneficial, effects of modern arsenical therapy. They advise that great care be exercised in giving a first course of antisyphilitic arsenical treatment to a woman with syphilis in the last months of pregnancy. Kuehn and his associates,⁷ Ingraham³ and others,⁸ likewise advise extreme caution in the use of arsenicals in pregnancy.

No less than fifty fatal cases of arsenical hemorrhagic encephalitis in pregnancy have been reported in the literature but we are, nevertheless, convinced that this number by no means represents the true incidence of deaths from this condition. Personal communications with the directors of a number of large prenatal syphilis clinics revealed that, without exception, fatalities due to arsenical administration had been observed by all of them. It was interesting

to note, moreover, that in many instances the only deaths reported occurred in pregnancy.

An analysis of the records of the syphilis clinic of the Charity Hospital for the past five years shows that the occurrence of fatal arsenical encephalitis is four times as frequent in the pregnant than in the non-pregnant woman of the same age group. The fatal reaction rate per 1,000 injections of neoarsphenamine is 0.76 for the former and 0.19 for the latter.

ETIOLOGY

There is a definite lack of agreement as to the cause of hemorrhagic encephalitis following arsenical administration. Individual idiosyncrasy or sensitivity, toxicity of the drugs, errors in its administration, excessive dosage, the syphilitic infection, chronic arterial disease, liver or adrenal insufficiency, disturbance in the colloidal equilibrium of the blood, direct toxic action on the brain capillaries have all been suggested as etiologic factors. In pregnancy, as Eastman⁹ has pointed out, the placenta is a storage center for arsenic, which is gradually set free in the blood over a prolonged period, thus increasing the amount of arsenic present in the blood stream. This, together with the fact that pregnancy presumably produces a certain amount of capillary alteration, may account for its more frequent occurrence in pregnancy, since Ireland¹⁰ believes that the lesions are doubtless produced by capillary vascular injury or thrombosis. It is likely that no single factor will explain all cases. However, the delayed metabolism of the arsenic and the accumulation in the body of the toxic products seem the most probable predisposing factors. From this hypersensitivity to arsenic or its metabolites, the patient develops an arsenical reaction when another injection is given. Death following shortly after a single arsenical injection is probably due to atopic drug allergy, while fatalities after one or more injections suggest sensitization (acquired allergy).

PATHOLOGY

The principle pathologic manifestations are observed in the brain but associated

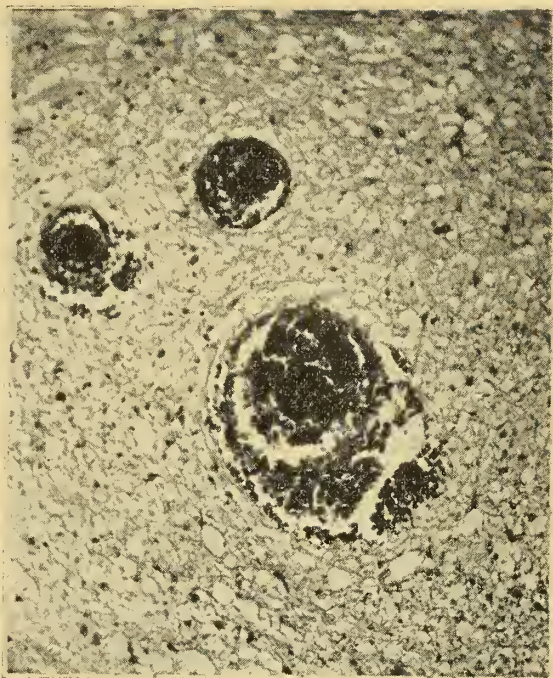


Fig. 1. Section of brain showing perivascular hemorrhage and edema characteristic of hemorrhagic encephalitis (x 200).

cord and meningeal involvement are not infrequently noted. The gross lesions appear as punctate hemorrhages throughout the brain substance. These may coalesce to form large foci and are usually found in the white matter, but occasionally in the gray matter, and in the pons and basal ganglia. Hemorrhage, however, is not an essential part of the picture. Some cases at autopsy show intense hyperemia and edema of the brain without any areas of softening or hemorrhage. It seems possible that edema of the brain occurs first, and in severe cases, is followed by hemorrhage. Alpers,¹¹ in 1928, gave an extensive description of the brain lesions or "foci." He states that on microscopic examination these foci appear as areas of perivascular necrosis which occasionally show an outer ring of hemorrhage. In the center of the lesion capillary or precapillary vessels are observed, with swollen or destroyed endothelium. In some instances the swelling is so great as completely to obliterate the lumen. The lumen often contains a fibrin clot or hyaline thrombus. Immediately next to the central vessel is an area of necrosis and beyond

that there may be an outer area of hemorrhage. Later, Globus and Ginsburg¹² described two cases in which ring hemorrhages constituted the main cerebral lesions, but recognized that these are not specific for arsenical encephalitis as similar histopathology has also been found in other diseases including epidemic and tuberculous meningitis, malaria and typhus. Because the hemorrhage is mainly perivascular Globus and Ginsburg suggested the name "pericapillary encephalorrhagia" as a more appropriate one than encephalitis.

DIAGNOSIS

The symptomatology and clinical course may vary considerably but the sequence of the appearance of the prominent features is frequently so similar that it constitutes a distinctive clinical entity. The clinical manifestations usually begin with headache and mental confusion, followed by convulsions, coma and death. The deep reflexes are at first hyperactive but soon diminish in strength; Babinski tests are usually positive; and ankle clonus may be elicited. Spinal fluid examination will show a flat colloidal gold curve, suggestive of encephalitis.

The differential diagnosis usually offers little difficulty. The development of serious neurologic manifestations following the injection of an arsenical preparation may warrant a tentative clinical diagnosis of hemorrhagic encephalitis due to arsenic. It must be distinguished from other conditions that may cause convulsions and coma in obstetric patients. These include eclampsia, uremia, hypertensive encephalopathy, and diabetes. And finally, the disease rather than the treatment may be the cause, inasmuch as the symptoms of syphilis of the central nervous system often closely simulate those of arsenical encephalitis.

TREATMENT

Therapy should be one of prevention, as once the condition occurs it is usually fatal. The institution of antiluetic therapy during pregnancy should await positive verification of the diagnosis and should be attended with even more than the usual precautions.

A thorough examination is imperative in order to ascertain medical or obstetric complications which might increase the dangers of treatment. Special attention should be placed on the condition of the liver and kidneys because these organs are principally concerned in the metabolism and excretion of arsenic. It is inadvisable to administer arsenical preparations to patients suffering with hyperemesis gravidarum or the serious toxemias of pregnancy.

Before each injection, the patient should be closely interpolated, and if any evidence of intolerance has occurred, arsenicals should be discontinued or continued only with lowered dosage and great precautions. Especially should the judicious use of these drugs be practiced when therapy is started late in pregnancy as the majority of patients who develop this complication do so in the last trimester of pregnancy.

Neoarsphenamine has been the drug most commonly employed in the treatment of syphilitic pregnant women. The newer drug, mapharsen, has received recent acclaim and the reports have been very encouraging. While it is too early to pass final judgment on the merits of the drug, it undoubtedly is safer than neoarsphenamine and apparently gives the unborn child adequate protection. Many authorities recommend the use of mapharsen for antiluetic treatment in the last three months of pregnancy or if reactions occur following the injection of neoarsphenamine. Whenever time permits, it seems advisable to begin the series of treatment by giving a course of six doses of bismuth or other heavy metal before the arsenicals are employed. It is stated that a high carbohydrate, high fat diet is of value in preventing reactions.

Once hemorrhagic encephalitis occurs, therapy is limited to the use of sedatives, hypertonic glucose intravenously, and repeated spinal puncture. Sodium and calcium thiosulphate have proved of no value.

SUMMARY

1. Two cases of acute hemorrhagic encephalitis, with fatal termination, following neoarsphenamine antiluetic therapy during pregnancy, are reported. It is significant

that in a five year period at the New Orleans Charity Hospital the maternal mortality rate of arsenical encephalitis was 0.76 per 1,000 injections, which is four times greater than the frequency of fatal reactions in non-pregnant women of the same age group.

2. The syphilitic infection was apparently of recent origin in one case and of long duration in the other. In both instances arsenical therapy was instituted for the first time late in pregnancy.

3. Small quantities of drug initiated the fatal reactions. A total of 0.9 gram of neoarsphenamine was administered by three injections over a 20 day period in one instance; the other patient received 0.75 gram by two injections in seven days.

4. Evidence of intolerance occurred after the third injection of neoarsphenamine in one patient and after the second injection in the other. The symptom complex began with headache and disorientation, followed by convulsions and muscle spasms, coma and death.

5. Autopsy revealed the pericapillary pathology in the brain found in hemorrhagic encephalitis due to arsenic.

CONCLUSIONS

There is increasing evidence to show that pregnant women are more susceptible to the bad, as well as to the good, effects of arsenical therapy, and furthermore, that fatalities, though rare, are particularly prone to occur when treatment is initiated late in gestation. By no means do we wish to convey the impression, even by implication, that less emphasis should be placed on the modern dictum that every woman should have a serologic test for syphilis in the first trimester of every pregnancy. Neither do we deprecate the value of antepartum anti-syphilitic therapy in the prevention of congenital syphilis. The added hazards of arsenical administration during pregnancy should suggest, however, the need for a more constant supervision of the pregnant syphilitic woman who is under treatment, and the great value of exercising unusual precautions in the administration of arsenical preparations during pregnancy.

In an effort to obviate the necessity for intensive antiluetic therapy during the last weeks of the antepartum period, early prenatal registration is urged, so that arsenical treatment may be started when it is least dangerous and when it will do the most good. Even more desirable would be the eradication of infection prior to conception. This objective can best be achieved by competent premarital and preconceptional examinations.

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INDICATIONS AND CONTRAINDICATIONS FOR VERSIONS AND EXTRACTION AND EXTRACTATIONS IN BREECH PRESENTATIONS

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NEW ORLEANS

By version and extraction is meant an operation which changes the polarity of the fetus with reference to the mother, and its delivery. By extraction is meant the removal of an unmutated child through the maternal passage.

Before discussing the indications and contraindications it is necessary to state the conditions which should be present before this should be attempted.

1. The cervix must be completely dilated, or an effaced and easily dilatable cer-

vix or it will result in death of the child, and extensive lacerations. The cervix can be manually dilated in special cases or can be incised.

2. In podalic versions the head must present and in breech extractions usually the buttock or some extremity.

3. There must be no disproportion between the passage and passenger: (a) The inlet of the pelvis must be ample. Arrest of the aftercoming head results from contraction of the pelvic inlet. A previous x-ray will prevent this complication; (b) the outlet must be ample. Loss of a child results when the bony outlet is contracted, and the need for more room in the posterior sagittal results in extensive lacerations, especially in the pelvic floor; (c) the soft parts of the outlet must be dilated; either manually dilate the pelvic floor and vaginal tract or a deep medio-lateral episiotomy should be done.

4. The urinary bladder and rectum must be emptied.

5. The membranes should not be ruptured if possible, except by introduced hand or where rupture occurred recently.

6. There should be an accurate diagnosis as to presentation and position of the child.

7. Slow delivery.

8. The uterus must not be too firmly retracted down on the fetus.

9. The patient's buttocks should be at the end of the table and the legs supported by a leg support or assistants, as throughout most of the extraction downward traction is made in the pelvic outlet.

10. Suprapubic pressure is necessary before any traction is made, and the assistant should be taught how to make pressure on the fundus of the uterus.

11. A good anesthetist and a deep anesthesia are necessary.

12. The child should be alive.

13. Asepsis is necessary. Hence all such patients should preferably be handled in hospitals.

the fetal body, such as transverse or oblique presentations; (b) face or brow presentations.

3. Fetal dystocia from faulty position; right or left occiput posterior positions in which the head will not rotate and engage, being movable above the superior strait.

4. Placenta praevia marginalis late in labor and lateral or partial placenta praevia. Braxton Hicks manoeuvre is used often in such cases.

5. Prolapsed cord; this procedure is not carried out when this condition has been neglected and becomes impacted or when the condition is associated with a contracted pelvis.

6. Prolapse of one or both arms, or shoulder presentation with hand presenting in vulva.

7. Accidental hemorrhage with dilated cervix.

8. Threatened maternal death in eclampsia, otherwise never indicated in this condition.

9. In nearly all cases where high forceps were used on the unengaged head.

10. Uterine inertia.

11. Premature detachment of the placenta.

12. In all varieties of head presentations in which it is believed that delivery can be more safely and more rapidly accomplished after version. In parietal presentations when the head remains asynclitic so that the parietal bone presents even after sufficient labor has been allowed to give the patient opportunity to square the head in the normal pelvis axis, a persistently abnormal drive must be suspected.

13. Where the child presents some deformity, sometimes more facilitated by version.

14. Transverse arrest in certain androied (male) pelvis types.

15. Cord around baby's neck (short cord).

INDICATIONS FOR PODALIC VERSION

1. Fetal dystocia from faulty attitude.

2. Fetal dystocia from faulty presentation: (a) This includes malpresentation of

INDICATIONS FOR BREECH EXTRACTIONS

1. In primary breech presentation, due to maternal reasons. In insufficiencies of the forces of labor, or an insufficiency in

relation to the need for immediate delivery because of patient's general condition.

2. Dystocia due to retraction or tonic contraction of the uterus late in the second stage. The only way uterine resistance can be overcome is by means of deep surgical anesthesia.

3. Twin pregnancies with both heads presenting with one head resting upon the other, or when any presenting part of either child will not engage.

4. Occasional breech presentation when the right or left buttocks rests upon the symphysis pubis arresting progress.

5. Maternal indications: (a) Time indicator; two and one-half hours in the second stage without progress; (b) emergency indicator; any maternal emergency which is accompanied with more risk than is a breech extraction.

6. Fetal indication, (fetal embarrassment); (a) Before the birth of the umbilicus if fetal heart goes below 100, or above 160, or irregular; (b) after the birth of the umbilicus any change in the rate or irregularity of the pulsations in the umbilical cord.

Generally speaking the operations are indicated in all women requiring prompt delivery when the head is floating at the superior strait, or is slightly engaged provided there is no great disproportion between its size and that of the pelvis. It is usually safer and a more satisfactory procedure than the application of high forceps.

The widest field of usefulness is in accouchement force after the cervix has been completely dilated by means of the hand or by bags; especially in antepartum hemorrhage, version and extraction constitute the readiest and most conservative method of delivery.

CONTRAINDICATIONS

1. A markedly contracted pelvis or funnel pelvis: (a) When the available pelvis space is so contracted that it is incompatible with delivery of a living child; (b) in serious or absolute disproportion between fetal and maternal measurements or diameters as in a flat and rachitic pelvis, or due to large sized baby.

2. Oversized hydrocephalus fetus.

3. In cases where labor progresses normally.

4. Tetanically contracted uterus or Bandyl ring: (a) In tonically contracted uterus or one in tetanic spasm it leads to ruptured uterus; (b) hour-glass contraction (high contracting ring); (c) when the uterus is dry and its walls are firmly applied to the body of the child; (d) after prolonged labor with long ruptured membranes and a thin lower uterine segment; (e) Bandyl ring contracted around the neck or shoulder of the child so firmly that it cannot be ironed out under the administration of morphine and surgical anesthesia; (f) never to be undertaken after the administration of pituitrin until the patient has been given a sufficient amount of morphine to secure at least moderate rest and uterine relaxation; (g) there is a difference of opinion if the presenting part has passed the external os and is firmly engaged in the pelvic canal that undue force is required to displace it.

5. It is never done in placenta praevia centralis.

6. Imperfectly dilated os, except in certain cases of placenta praevia where Braxton Hicks is employed or in cases where the cervix can be dilated manually when the cervix is at least four fingers dilated, under which circumstance the tearing will be minimal. If delivery is imperative in the face of a lesser degree of dilatation, the cervix should be treated by incision rather than by the manual method in order to avoid tearing and the resulting inadequacy of dilation. There must be no uterine obstacle to rapid advance which extraction demands. The cervix must be completely effaced and the os dilated, also the vagina and perineum ironed out.

7. A dead fetus.

THE COMPLICATIONS

The complications that may result from podalic versions and breech extractions are divided into those which may occur in the mother and those which may occur in the fetus.

Maternal Complications: (1) Ruptured soft parts; (2) hemorrhage; (3) rupture of

uterus; (4) uterine inertia after delivery; (5) sepsis.

Fetal Complications: (1) Asphyxia from compression of cord; (2) fracture of bone, separation of symphysis, and dislocations; (3) injury of nerves, leading to paralysis; (4) head injuries; (5) blood extravasations.

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MODERN CONCEPTS IN THE TREATMENT OF BRONCHIAL ASTHMA*

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NEW ORLEANS

From the standpoint of etiology it may be said that there are two types of bronchial asthma, the extrinsic and intrinsic. This is a well known classification with which we are all familiar. The extrinsic variety is the type that is known to be caused by the sensitization of the patient to various causative factors which can be identified in a diagnostic study. This is the most frequently seen type of asthma, and is the one in which the best results have been obtained from treatment. It may be caused by pollen, foods, and various other contact and inhalant factors. This condition requires most careful and exhaustive diagnostic measures so that we may find out the various antigens which may play a part. It is usually found that this type of asthma is caused by several substances, for instance what appears to be a simple case of ragweed pollinosis may turn out

to have a number of aggravating factors. The patient may be sensitive to several foods and also dog hair and wool. These other factors may not be enough by themselves to cause asthma outside the ragweed season, but if they are not handled properly, hyposensitization to ragweed may not be of any great help. While pollen asthma shows a seasonal variation, asthma due to other antigens may appear at any time of the year. Diagnostic measures, to be complete, are rather complicated and include skin testing by the scratch and endermal methods. Doubtful reactions are checked by the ophthalmic and nasal patency tests. Food reactions may be checked by the leukopenic index and the keeping of a food diary. This diagnostic survey should be done by an allergist.

To sum it all up the treatment of this condition depends primarily on the avoidance of causative factors, and hyposensitization when indicated.

Intrinsic asthma comprises the group of patients in whom we are unable definitely to attribute the asthma to an external cause. The incidence is about 20 per cent of all cases of asthma. Its identification can only be made by exclusion, after no relief occurs when environmental factors have been controlled. It is claimed by some to be caused by infection or by endocrine disturbances. Other investigators contend that it is really another manifestation of atopy, and that the exciting agents have not been found. It is often seen in middle life, may be associated with bacterial infection and tends to follow a progressive course which causes severe attacks of asthma and may often eventually terminate fatally.

It is believed that some mechanism, possibly unknown, sets off the disturbance which releases the so called H substance which initiates the attack. To summarize briefly the present concept of allergy, it is believed that the antigen combines with the fixed antibody, damaging the tissue cells. This releases histamine, or the H substance, which stimulates the parasympathetic nerves to secrete acetylcholine. Then this overstimulates the parasympathetic

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system, which causes muscles to contract or dilate according to their location, increases the permeability of capillaries and causes various other responses. It is known also that psychic and emotional factors are extremely important in this mechanism. The psychology of each individual must be carefully studied, and mental disturbances must be overcome when possible.

By the above mentioned histamine release the phenomena of physical allergy may be explained. For instance, in a cold sensitive individual there is a release of histamine which initiates the allergic symptoms.

The study of bacterial allergy has been very interesting. Skin reactions to bacteria may be either manifested by an immediate wheal or by a delayed reaction. In a recent publication, Bronfenbrenner states that the mechanism of bacterial allergy is identical with the allergy to simple proteins. He says that the differences in skin reactions are not fundamental in nature and may be due largely to the complexity of the composition, physical state, and relatively low immunogenic properties of bacterial antigens. It is believed that some cases of intrinsic asthma are due to bacterial allergy. The treatment may be largely symptomatic, and will be discussed later.

TREATMENT

In treating asthmatic conditions the diagnosis must be established. The study of allergy is very closely allied to internal medicine. Conditions which must be differentiated are: bronchiogenic carcinoma, foreign body, cardiac asthma, bronchial or lung infections, mediastinal pressure from tracheobronchial lymphadenopathy, or sub-sternal thyroid. Breath sounds, when there is an obstruction, show a different pitch, and there may be a stridor. Other aids in diagnosis are the history, eosinophil count, roentgen ray, sputum examination, and bronchoscopy. Cardiac asthma may present a very similar picture to bronchial asthma, and is often seen in elderly hypertensive individuals. Other evidences of cardiovascular pathology may be found. The electrocardiogram will give aid in ar-

riving at the correct diagnosis. Incidentally, I may say that when emphysema is present, the determination of the size of the heart may be very difficult.

The common pathologic changes in the bronchi consist of thickening and hyalinization of the basement membrane, hypertrophied bronchial musculature, eosinophilic infiltration, and degeneration of the mucous glands. Surrounding emphysema is present. It is generally believed that the symptoms of asthma are due not alone to muscular contraction, but are also due to edema of the mucosa, and the obstruction caused by plugs of mucus. The determination of the vital capacity is an aid in determining the extent of the process, and subsequent improvement may be determined by this method.

Symptomatic therapy depends on the type and degree of asthma that is present. In a recent article, Keeney gave an excellent classification of these various types: (1) patients with mild bronchial asthma; (2) those with moderately severe bronchial asthma; (3) severe bronchial asthma. The last group is further subdivided into: (a) patients with acute severe bronchial asthma; (b) those with intractable asthma (status asthmaticus); (c) severe chronic bronchial asthma.

The first group is usually relieved by ephedrine sulphate $3/8$ grain. This may be repeated at 30 minute intervals, if relief is not immediate. I do not like to give more than three doses in succession. Once relief is obtained, the ephedrine may be repeated every four hours. There are other synthetic preparations which have an action similar to ephedrine. Due to the fact that ephedrine frequently causes nervousness, tachycardia, and insomnia, I like to give a sedative at the same time. This may be phenobarbital, amytal, or nembutal. Ephedrine may also cause palpitation, gastrointestinal disturbances, and urinary suppression in old men.

Proprietary preparations containing ephedrine, aminophyllin or theophylline with ethylenediamine, and a sedative are widely used. Theophylline sodium acetate, in one such combination, may be had in a plain

capsule and an enteric coated tablet. This is especially useful in cases of nocturnal asthma, and the patient may take both on retiring. By the time the plain capsule is wearing off, the constituents of the enteric coated tablet are just being absorbed. It must be remembered that rest and sleep are important factors in treating asthma.

These oral preparations are best given early, as the patient who has a well advanced attack may not respond as well.

Patients who do not respond to the above medications, the ones who have moderately severe asthma, may be helped by inhalations of 1-100 solution of epinephrine hydrochloride. This is administered by the patient breathing in a fine spray which is produced by a special nebulizer. It must be remembered that systemic manifestations of epinephrine may occur due to absorption from the bronchial mucosa. It is claimed that too frequent or prolonged use of this method may cause dryness and even ulceration of the mucosa. However it is a very helpful remedy when properly used. Abramson finds that this method is improved when the vapor pressure is low. He attains this by using 10 to 50 per cent glycerine in the preparation. Richards, Barach, and Cromwell found that the vaporized medication was more effective when combined with oxygen and blown into the nose under slight pressure.

The more severe type of asthma will require injections of epinephrine hydrochloride. The requirements of each individual are different. Many men give 0.3 to 0.5 c. c. and repeat every 15 minutes for three or four doses until relief is obtained. Sterling advocated smaller doses, such as 0.1 to 0.15 c. c. repeated at intervals of 30 minutes for two or three doses, and points out that some individuals are hypersusceptible to epinephrine. It may cause extreme nervousness, precordial pain, tachycardia and in severe cases acute pulmonary edema, cardiac dilatation, and even ventricular fibrillation. The patient who is to obtain relief will attain it usually after a total dose of 0.3 to 0.4 c. c. Massage over the site of administration may aid in absorption. Speci-

mens of epinephrine which have been standing for several months, and have become brown colored lose about 30 per cent of their strength. It may be used with caution in hypertension.

Epinephrine relief persists for a varying period of time and with the idea of prolonging its effects, a solution of epinephrine in peanut oil for intramuscular injection has been widely used. This has been called "slow epinephrine" because of its delayed absorption and prolonged effect. A recent study has shown that its absorption compares favorably with the aqueous preparation, and therefore it is not necessary to give the aqueous solution for quick effect. Very good results have been obtained with this preparation, but some patients have had severe reactions following it. A patient allergic to peanut oil should not receive it. A similar solution of epinephrine in gelatine has also given excellent results, and is now on the market for general use. A sedative should be given to the severe asthmatic patient to give rest and to control the emotional state.

The condition of intractable asthma or status asthmaticus is sometimes very hard to relieve, and sometimes terminates fatally. It is seen in patients who have had repeated severe attacks. In this state the patient does not react to epinephrine, and usual methods are of no avail. Hospitalization is advisable because then the environmental factors at home may be avoided. Aminophyllin 0.24 gram in 10 to 20 c. c. of saline is given intravenously. Some physicians prefer a dose of 0.48 gram, but most patients will be relieved by the smaller dose. This medication has been found to be effective in about 75 per cent of cases.

Different investigators have found that aminophyllin causes dilatation of the constricted bronchioles. It must be given slowly, or it may cause some reaction as nausea, vomiting, burning in the eyes, a feeling of heat, a sense of constriction in the chest, and at times convulsions and coma. It may sclerose the veins or cause excruciating pain should it be injected into the tissues. Alexander recommends giving it in an infusion

of 500 c. c. of 10 per cent glucose. The dose may be repeated in four to six hours. He also recommends the rectal administration of paraldehyde. After relief by aminophyllin, patients who have been "epinephrine fast" may again respond to this medication.

Keeney recommends the use of hypertonic glucose, saline, or sucrose solution intravenously in order to reduce mucosal edema, and adds epinephrine to the solution. He uses 100 c. c. of 50 per cent sucrose given very slowly at the rate of 5 or 10 c. c. a minute, in the belief that sucrose remains longer in the blood. However, Anderson and Bethea have shown that damage to the lining cells of the convoluted tubules may be thus caused, and advise against its use in patients with renal damage. These changes may or may not be of significance in the normal case.

As the asthma improves, the constriction lessens and the mucous plugs in the bronchi are coughed up by the patient.

Anoxemia and carbon dioxide retention are seen in status asthmaticus, and therefore it may be necessary to give oxygen. As helium is one-seventh as heavy as nitrogen, a mixture of 80 per cent helium and 20 per cent oxygen is usually used, although other proportions may be used at times. This lighter gas can more easily pass through the bronchi. This is given with the B. L. B. mask or preferably in a special tent. The administration of helium and oxygen causes a decrease in the negative intrapleural pressure. An increased negative pressure causes an exudation of edematous fluid.

Holinger, Bosch and Poncher state that oxygen is an antiexpectorant as it dries the secretions and increases their viscosity. They recommend using 5 or 10 per cent carbon dioxide with oxygen, and adding water vapor to the mixture in order to decrease the viscosity of the sputum.

Ziegler has recently done some interesting work on the intravenous administration of oxygen, but states that it is ineffective when there is a marked diminution in the capacity of the vascular bed of the lungs, as is seen in emphysema.

A mixture of ether and olive oil may be given by rectum if there is no improvement from the above measures. This may cause relaxation, and at least gives temporary relief from emotional stress. Keeney digitalizes these patients, but Vaughan advises against it unless the heart is enlarged.

If everything else fails, 0.1 c. c. or more of 1-10,000 epinephrine in saline may be tried slowly by intravenous injection. This is dangerous and may cause auricular dilatation and pulmonary edema. In status asthmaticus the pulse rate is usually elevated to 130 or more and intravenous epinephrine is then contraindicated.

Cyclopropane anesthesia has been used with success. Avertin anesthesia is not widely used.

General supportive measures must not be neglected. Nourishment, usually of a liquid type, must be given, and attention given to bowel elimination. The patient will probably be helped by giving sweet drinks which contain assimilable sugars.

Other general measures which are used in the treatment of asthma, will now be considered.

Morphine is a parasympathetic stimulant, and depresses the respiratory center, and if used at all must be used only in very small doses in selected cases. It has been used to allay apprehension and to quiet the patient at certain times. I do not advocate it in status asthmaticus, or at any time, because of the great number of deaths which have definitely been caused by this drug. It is far too dangerous to use in the treatment of an attack of asthma. Atropine is of no great help, but Myerson advises its synergistic use with epinephrine. Asthma powders which are widely used often give temporary relief. They are made up of stramonium leaves and potassium nitrate. Sensitization has occurred to these products.

The administration of potassium salts has been shown by various investigators also to be useless. Calcium is a time honored drug which is no longer used in the treatment of asthma. As iodides are readily excreted through the bronchial wall, their administration has a tendency to help liquefy the

thick tenacious mucous in the lumen of the bronchi. Toxic manifestations must be watched for. Recent work tends to show that a high intake of sodium may aggravate asthmatic attacks.

Many workers have attempted to secure refractoriness to allergic manifestations by the injections of small amounts of histamine. Quite a few have reported good results. The use of histaminase, which is a ferment which destroys histamine, has not given notable results in the treatment of asthma.

An interesting article has just been published in which the investigators attacked the problem from a new angle. They studied the effect of a synthesis of histamine to a protein through an azo linkage. This produced a hapten substance whose antibodies may neutralize any excess of histamine released after an antigen antibody reaction. The results are not definite, but further study may be of great interest.

Most allergists have reported better results in the treatment of nasal infections by conservative methods. Many nasal polyps will disappear after proper treatment. Local treatment should help drainage and relief of congestion. Later if there is no improvement, more radical nasal surgery may be done. Of course if there is a definite mechanical abnormality it should be corrected at once. The eradication of foci of infection may be of help in a few cases.

Non-specific therapy which includes autogenous and stock catarrhal vaccines, sterile milk injections, or intravenous typhoid vaccine, may be of help. Sensitization to milk should be ruled out before treatment with this substance.

Hyde has recently reported good results with rather mild fever therapy, using a humidified external heating type of cabinet. He reports improvements in 75 per cent of his cases. His results seem to be better than when longer and higher fevers are used.

King has recently recommended the intravenous injection of strontium bromide with good results.

A few years ago there was a great wave of enthusiasm for the use of iodized oil, which as you know is instilled down the trachea into the bronchi. The routine use of this preparation has been condemned by many writers. Seibold saw three definite bronchopneumonias in the same hospital at the same time which were due to the use of iodized oil. It may cause spontaneous pneumothorax, chronic infection, iodism, or lipoid pneumonia. The oil sometimes remains in the lung for several years, and acting as a foreign body causes tissue reaction.

The contraindications, according to Moore are: Active pulmonary tuberculosis, reduced vital capacity of the lung, acute pulmonary infection, foreign bodies, during attacks of bronchial asthma, cardiac weakness, late bronchial malignancy, sensitivity to iodine, sensitivity to poppy seed oil, and extremes of life.

In his article Seibold stated that after 1937 there was a 500 per cent increased mortality in asthmatic deaths in a hospital, the greatest increase being in the group that received the oil. In my opinion it may be used only once or twice for diagnostic purposes, but should not be used for therapy.

There is a possibility that a disturbance of the body magnesium may play a part in asthma, as Haury has recently shown that 50 per cent of patients having an attack of bronchial asthma had a low blood serum magnesium. He gave magnesium sulphate intravenously and intramuscularly to two patients, with good results. This is still in the experimental stage, and is not recommended for general use.

Various types of surgery have been done on the autonomic nervous system. I understand that there have been some good results, but there have also been many failures. Nerve section may be useless because of the belief that there may be a local reflex arc in the bronchi which may initiate muscular spasm. There is a connection between the sphenopalatine ganglion and the vagus nerve, and it has been found that injection of this ganglion may be of help.

With regard to the use of the sulfonamide drugs, a recent study by Unger, showed that only four out of 23 patients were improved. I feel that these drugs should be used only in the presence of definite acute infection, as evidenced by fever and leukocytosis.

Roentgen therapy has been advocated at various times, and recent reports from the Mayo Clinic have been encouraging.

SUMMARY

A discussion of the treatment of bronchial asthma has been presented.

While over 80 per cent of patients obtain relief from specific therapy, there are many who must be treated symptomatically.

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DISCUSSION

Dr. W. A. Lurie (New Orleans): I was interested in Dr. Ogden's paper because of the fact that in recent years I have had a series of chronic asthmatic patients who have been treated along the lines which he indicated Dr. Hyde instituted; that is modified hyperpyrexia. This has been very successful in my hands because I believe the underlying principle of this asthmatic condition has been attacked primarily. First the spasm, the bronchial spasm, and the blocking of the bronchus and air cells within the lungs is immediately relieved because of the heat development within the lung tissue itself. The spasm is quickly relieved. It has been my experience that patients who have been unable to rest in the reclining position fall asleep while under treatment and relief is not only temporary or while under treatment but lasts a number of days before another treatment is given. In addition to the effect brought on by the heat, it has been my practice to try to relieve whatever

pressure, internal pressure, may have resulted from what I am willing to term residual air within the lung, and within the air cells. Very often these patients have a mucus plug which prevents the escape of air of which the oxygen has been entirely eliminated. Throwing off of this air is impossible unless some additional effort is given. This additional effort is given by means of increasing pressure on the chest wall so as to force out this air and also the plugs that have been formed within the bronchi. In this instance I use the sine wave with very good effect. Recently in addition to these two modalities which have been effectual, I have undertaken to ionize epinephrine and I find the effect of epinephrine is quite lasting when used by means of ionization. Patients have reported the effect lasting for from four to six hours without any of the symptoms of rapid absorption and other deleterious effects of epinephrine or adrenal chloride injection. I believe the future of the treatment and relief of these asthmatic conditions lies in a further study along the lines suggested by Dr. Hyde.

Dr. N. F. Thiberge (New Orleans): In hearing Dr. Ogden's paper I was reminded of a large volume when reviewed in the *Reader's Digest* where the reader is furnished in a few pages the salient and important points of a history and the reader enabled to carry with him all the important facts impressed upon his memory. I think the doctor ought to be complimented on the clear résumé of the treatment given. He has presented an article that will prove of use to those interested in the treatment of asthmatic symptoms which can be used as reference.

There are several points I want to emphasize in the treatment of allergic asthma. The first thing that comes to my mind reminds me of advice that Dr. Menage gave me. He said many patients with scabies came to him that had been maintained by the enthusiastic treatment of the general practitioner. Strong antiseptics had been used; after becoming effective they were needlessly continued to control the irritation that had been caused by them. The treatment Dr. Menage instituted was to withdraw the antiseptic. The same thing holds good in the treatment of allergy. You may have removed the principal allergy; by adding and persisting in the antigen you may be maintaining the symptoms. The point brought out in the paper is that in treating allergy, attention should not be fixed only on the principal antigen but many secondary allergies come into play and long after the principal allergy is controlled these secondary elements come to the surface and may become very serious.

When an allergen attacks a susceptible cell anywhere in the allergic, histamine (or a histamine-like body) is liberated and circulates freely in the blood stream until it finds a shock organ; then follow symptoms due to this invasion. Adrenaline

neutralizes the H body in the blood stream; allergens in ascending doses fortify the shock organs to the invading H bodies. Small doses of histamine logically should be able to accomplish the same result.

In reference to the question of lipiodol, I do not agree completely with Dr. Ogden as to its value in the therapeutics of asthma. I think it has its place. It can be used too promiscuously or enthusiastically and in too concentrated solution and does harm. It is especially indicated where the bronchial mucous membrane is extremely sensitive and passage of oil with antiseptic reduces that irritability and the spasm is overcome. That is one indication. The second place where lipiodol has its place is in those cases where there is bronchiectasis. As soon as I inject the lipiodol if I hear a good deal of gurgling, bronchial rales, and the patient, without effort, brings up a good deal of mucus and pus, I know lipiodol has been indicated and I know this patient will be relieved immediately. Very often I have used lipiodol in acute asthma with a great deal of success. I think in these cases an extreme irritability of the mucous membrane was the principal agent.

Dr. Ogden (in closing): With regard to the first statement about ionization of epinephrine, Dr. Abramson of New York recently did some very interesting work in which he introduced epinephrine phosphate into the skin by electrophoresis. By this method of administration, it is believed to be pharmacologically active over long periods of time. The epinephrine is slowly absorbed from the depots in the skin. Constitutional reactions are rare, and excellent results were obtained in the treatment of severe asthma. Other workers are using electrophoresis in various ways. I recently visited Dr. Vaughan's clinic and while there observed skin testing in children in which the allergens were applied to the skin by electrophoresis. Much work has been done with the application of histamine by electrophoresis.

I do not know if I understood Dr. Thiberge's statement correctly, about desensitization. My idea is that we try to prevent the union of antigen with fixed antibody before the H-substance is produced, not after. Desensitization at that time, after the H-substance is produced, would not alter the reaction in progress, although it might help preventing the further progress of the allergic reaction.

With regard to iodized oil and acute asthma, we must remember that the lumen is reduced in size: by constriction, by mucous plugs, and by edema, and if such an oily foreign substance is instilled, it may aggravate the obstruction, in some smaller bronchi. Quoting Seibold: "Spontaneous pneumothorax, chronic infection, iodism, lipoid pneumonia and death are untoward reactions that cannot be passed over lightly, and are definite reasons enough to condemn the routine use of this procedure."

FORTIFYING WHITE BREAD WITH
VITAMINS AND MINERALS*SIDNEY BLISS, Ph.D.†
NEW ORLEANS

The Committee on Food and Nutrition of the National Research Council was organized at the Government's request to provide scientific guidance for a national nutrition campaign.

Such a campaign would obviously start with a consideration of such articles of food as are most commonly used and which furnish a large share of the calories in the diet. Wheat flour and the foods prepared from it were considered first because they furnish more calories in the average diet than any other type of food.

The preference of consumers for a whiter and more highly milled flour has resulted in the complete removal of the outer coatings of the wheat kernel before being made into flour. This has, accidentally of course, deprived flour of those constituents which occur chiefly in these outer layers of the wheat kernel.

The importance of the whole matter lies in the fact that the vitamins and minerals present in whole wheat occur almost exclusively in these outer coatings of the wheat kernel. As a result of milling processes used to produce a white flour, therefore, wheat is deprived of its total vitamin content and there is an almost complete removal of the minerals it originally contained.

There is good reason to suppose that the poor physical condition of a large part of our population is due, in part at least, to an inadequate intake of these vitamins and minerals.

It has seemed in the national interest, therefore, that attempts be made to furnish an automatic supply of these dietary essentials. That they are essentials cannot be doubted when the overwhelming evidence is considered. Russell M. Wilder,¹ Chair-

man of the Committee on Food and Nutrition of the National Research Council and member of the Nutrition Advisory Committee to the Coordinator of Health, Welfare and Related Defense Activities, has the following to say of his own experimental observations: "The degree of disability induced by withdrawing thiamine from the otherwise adequate diets of these persons was impressive. Fatigue appeared, interest in daily tasks was lost, accompanied by discouragement, depression and irritability. Appetite was lost. Multiple neurasthenic complaints were heard. The heart sounds became faint, the blood pressure fell, the pulse was irritable, and as the duration of the restriction was prolonged abnormalities in the action of the heart and the mobility of the stomach and intestine could be recorded with special apparatus. Likewise changes were noted in the chemical constituents of the blood, especially in the concentration in the blood of by-products in the oxidation or utilization of sugar in the body. These abnormalities were all quickly corrected when more thiamine was given."

The proved therapeutic value of nicotinic acid in pellagra is too well known to require further comment, and evidence is continually appearing to demonstrate the therapeutic usefulness of other members of the vitamin B complex.

The vitamins that are lost when whole wheat is processed into white flour are: (a) all members of the vitamin B complex (more than eight known substances plus some unidentified ones), and (b) vitamin E. The minerals lost are chiefly iron, calcium and phosphorus.

It would seem that if the milling of wheat to produce white flour removes important dietary essentials when the outer coatings and the endosperm are removed, the solution is a simple one, make whole wheat bread from whole wheat flour from the unaltered grain. It is this simple. The difficulty is to get people to see it.

Those who have studied the problem are unanimous in the opinion that the substitution of whole wheat bread for white bread would do much toward the improvement

*Read before the Orleans Parish Medical Society, December 8, 1941.

†From the Department of Biochemistry, Tulane University.

of the American dietary. One investigator² has suggested that educational efforts might be aided by an economic incentive. The one he suggests is to reduce the price of whole wheat bread and add the difference to the cost of white bread. If white bread becomes more expensive, while whole wheat bread drops in price, many people might care to try whole wheat bread, and in most cases that is all that is needed because many people find whole wheat bread so agreeable to the taste that they prefer it to white bread, whatever the nutritive values may be.

The general preference for bread made from white flour and the desire of people to use it more generally raises the question as to what can be done to improve its obvious deficiencies. The ideal arrangement would be to add the vitamin E, all members of the vitamin B complex, and iron, calcium and phosphorus in the amounts lost in milling, and have the bread made from such an enriched white flour look and taste like the nutritively-deficient white flour we naturally prefer. The national program of enriching white flour addressed itself to this problem.

The vitamins and minerals agreed upon as supplements to white flour are thiamine (vitamin B₁), nicotinic acid and iron. These supply two of the more than eight members of the vitamin B complex and one of the three mineral deficiencies. It is agreed further that, at the option of the millers and bakers, riboflavin, calcium and phosphorus may be added if the commercial firms care to add one or more of them. This allows for, but does not compel, the

addition of a third member of the vitamin B complex, and allows for the addition of the other two mineral elements known to be lacking in white flour.

A word of caution is in order if one is to think of the many implications of an experiment conducted upon such a large scale—because it is an experiment. Evidence is accumulating to substantiate the view that the vitamin requirements are not only absolute but relative. It seems that, as has been shown to be the case for minerals and hormones, vitamins, too, must be balanced in amount against each other. Experimental animals that have been getting along on very low absolute amounts of vitamins just above the level where frank vitamin deficiencies appear, have been given supplements of one vitamin with the result that a deficiency condition due to lack of one of the others appears. It is this danger that exists in arbitrary and incomplete supplementing of low vitamin and low mineral diets.

It seems that every possible educational effort should be made to get people to use whole wheat bread in place of white bread. For those who cannot be reached, the enriching of white bread is the next best effort, with a careful watch being kept for any harmful effects of incomplete supplementation of low vitamin and low mineral diets.

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THE ANNUAL MEETING

The sixty-third annual meeting of the Louisiana State Medical Society will be called to order on Tuesday morning, April 28, with appropriate ceremony. The House of Delegates will convene on the day previous.

This year the State Society's Committee on Scientific Business has made some rather progressive changes in the arrangement of the program which should enhance

interest in the meetings and which should add to their value. The program will provide for the Wednesday afternoon session at the Roosevelt Hotel to be given over largely to the five guest speakers who will be in attendance and who will deliver addresses. The meeting will continue until Thursday midday instead of closing Wednesday evening, as in the past.

The various section chairmen have been able to provide an excellent group of speakers for the members of the State Society. As a matter of fact the number of men who have asked to be put on the program and who have something well worth while to present to the Society is greater than it ever has been in the past. It might be appropriate to mention the five out of town speakers. They include Dr. J. A. Bargaen, of the Mayo Clinic, whose investigations on colitis have won him an enviable reputation, who will speak on "The Use of Sulfonamide Derivatives in the Digestive Tract." Dr. Bargaen will be the guest of the Section on Gastroenterology. The surgical and dermatologic group have invited Dr. A. B. Loveman of Louisville, one of the best known dermatologists in the South who will speak on that most intriguing subject "Some Cutaneous Manifestations of Systemic Disorders." The medical and therapeutic section has invited Dr. Frederick Baskett of Texarkana, who will bring up to date for the listener the modern treatment of diabetes. This same section has also asked Dr. Charles T. Stone of Galveston, Professor of Medicine at the University of Texas, who will speak on a subject always of interest to the doctors, namely "The Future of the Coronary Thrombosis Patient." The Section on Gynecology and Obstetrics has invited Dr. Ralph A. Reis of Chicago who will speak on the important subject of "Causes and Treatment of Spontaneous Abortion."

In addition to the excellent scientific program the usual entertainments will be provided for the visiting ladies and for the convocation as a whole; a dinner dance will be held on Wednesday evening.

Another variation from the usual proce-

ture will be to hold an open meeting on Tuesday morning. On Tuesday evening Dr. King Rand, President, will read his address, and the medal will be presented to him. The annual orator, Mr. Usher, one of the outstanding scholars of New Orleans and head of the Tulane-Howard Library, will deliver his oration on Wednesday evening. The induction into office of the new president will take place Thursday morning in the House of Delegates.

In every respect this meeting promises to be one of the best ever held by the State Society, whether it be considered from the scientific or from the social point of view. The activities of war, the fact that many of the men are busily occupied in defense activities might at first glance suggest that the attendance will be small. Judging from the experience of other meetings, however, the martial and defense activities seem to stimulate the doctor to acquire greater knowledge so that medical meetings on the whole have been very much better attended than in the past. Certainly it behooves the physician at this particular moment to keep up to date on scientific facts and scientific innovations. Furthermore, with the additional hours that the doctor is putting in with all his numerous activities it is due him to have a few days' rest and recreation mingled with scientific opportunities.

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ACCELERATED MEDICAL COURSES

One of the very important measures in national defense has been the actions of the Army and Navy to make it possible to keep medical students in their courses until they have completed their training. The necessity of a continuing supply of physicians for future medical officers is so obvious that it hardly needs to be stressed. However, early in the negotiations to obtain this desideratum considerable objection was raised by selective service which felt that there could be no group deferments according to the strict letter of the law. Through the combined action of certain bodies the American Medical Association, the Council on National Defense, the Association of American Medical Colleges and other in-

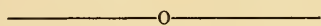
terested groups, General Hershey and his staff were made to realize the importance of continuing students in the medical school and suggested to the draft boards that this would be a wise step. That the thousands of draft boards throughout the country have agreed is shown by the fact that of some 20,000 odd medical students in the country only two were drafted in so far as is known.

In order to cooperate in every way with the program for defense, medical schools throughout the country have now adopted a policy of accelerating the curriculum so it will be possible for the students to graduate within a period of three years and in many instances classes will be admitted every nine months. In this way the flow of younger doctors to the services will not only be stepped up but actually more men will graduate than in the past in a given time. Acceleration of the courses will be made possible by the doing away with vacations and prolonged holidays so that the courses can be finished in three calendar years. The Federation of State Medical Boards in the United States have cooperated most wholeheartedly in this program and in the instance of an occasional state which requires four years of residence in the medical school, measures will be taken to change or modify the existing law so that the men who graduate in three years may practice in the affected state when they complete their Army service. The Council on Medical Education and Hospitals of the American Medical Association has approved of this accelerating of the medical curriculum. The only request they make in the medical school is that the high standards of medical education will be maintained without deterioration in the quality of instruction. The medical schools are preparing to do this so that the young man who graduates in three years will obtain a training comparable to that given in the past to the men who graduated in four years. Of course there will be some difficulties in doing this. Many of the younger medical teachers are already in the service and more will follow. However, by calling

on the older men to give more time and by the sacrifice of all holidays it is believed that an excellent education can still be given to the prospective doctor.

It might be pointed out that in order to make impossible drafting of medical students, the Army is commissioning all medical students, and college men who have been accepted as students to enter the Freshman class next year as 2nd Lieutenants in the Medical Administrative Corps Reserve, or as Ensigns H. V. (P.) U. S. Navy. It is not obligatory for the medical student to apply for a commission in the Reserve of the two services but if a man is in good physical condition unless he does so he will jeopardize his chances of obtaining a medical education as he may be drafted. Because of the essentiality of a year's training as an intern in a hospital, these men will not be called until they have completed one year of internship.

In conjunction with these schemes to assure a continuous stream of young doctors entering the services of the armed forces it should be pointed out that it has been the medical profession which has gotten behind the movement, pushed it and accomplished it. The medical and dental professions are practically the only professional groups who have assigned to them the procurement of members of the profession and who have more or less complete professional control. This is an honor and a dignity which shows that the General Staff appreciates and realizes what physicians can and will do. It is decidedly up to our profession to see that the trust that has been placed in us is maintained.



PROBLEMS OF WOUND INFECTION

Miles,* Professor of Bacteriology at University College Hospital Medical School of London, writes from the viewpoint of the bacteriologist in his consideration of wound infections produced under war conditions.

*Miles, A. A.: Some problems of wound infection, *The Lancet*, 2:507, 1941.

He states that in the past the surgeon has often felt that the bacteriologist is not needed in a consideration of war wounds but it is well known now that the bacteriologist has become dominant in the study of the control of wound infections.

The bacteriologist at first is faced with freshly inflicted wounds. In these wounds may be bacteria from the skin, alimentary tract, clothes, and common dirt. From these wounds will come a large variety of different types of organisms. After the patient is received in the hospital, very often the bacterial flora changes considerably and strange to say such bacteria are often much more disabling in their after effects than are those which were introduced at the time of the infliction of the wound. Because of this fact most punctilious care should be taken in the subsequent treatment of wound infections. In order to prove this point Miles quotes an experiment, carried out in a neurosurgical ward, where at times the rate of infection rose as high as 30 per cent. Fifteen per cent of these wounds were infected in the hospitals. The ordinary careful forceps dressing technic was used but in spite of this, *Strep. pyogenes* spread from patient to patient. The technic was then carefully revised, masking was rigidly insisted on and the incidence of secondary ward infection dropped to a remarkable degree.

The author discussed also methods of treatment, stating that there are antitoxins and a number of antibacterial chemotherapeutic agents, natural and synthetic, to combat the organisms that enter wounds. Of the natural antibacterial substances, such as Dubos in this country has written much about, experience is not sufficient to state that they will be of value in the treatment of war injuries. On the other hand, the synthetic chemotherapeutic agents have been extensively tried and have proved their value, both prophylactically and therapeutically. The sulfonamides are inhibited to a certain extent by organic matter but even in the presence of pus their local application materially diminishes the number of streptococci, staphylococci and

spore-bearing anaerobes of wounds. Miles states positively that there is every justification for their early employment in treatment of wounds because even if they do not destroy bacteria they at least prevent their multiplication. In the treatment of gas gangrene the indications are not quite as definite. Sulfonamides have been tested only occasionally in man, and in animals, for the most part unsuccessfully.

Local therapy is particularly efficacious because the maximum concentration of the drug can be obtained in the exact vicinity of the growing organisms. Chemoprophylaxis has also been shown to be more successful than chemotherapy. The different sulfonamide preparations are discussed. Sulfathiazole and sulfapyridine are probably better than sulfanilamide when *Cl. welchii* organisms are present. With *Cl. septique*, sulfathiazole is most efficacious and is outstanding with *Cl. oedematiens*. Miles points out that for historical reasons sulfanilamide is thought to be the best of the sulfonamides in the treatment of streptococcic infections, sulfapyridine for pneumococcic and sulfathiazole for staphylococcic. However, the latter sulfonamide preparation is effective against all types of cocci and appears very much the best drug for the gas gangrene trio of organ-

isms. Sulfathiazole is particularly beneficial because it is moderately soluble. It goes into solution slowly but in sufficiently effective concentration, whereas sulfanilamide is probably too soluble and sulfapyridine is too insoluble. It is necessary to obtain a maximal concentration of the drug through precise application of the powder to the seat of infection.

Miles discusses also antitoxin and sulfonamide action. A combination of these two in gas gangrene is more effective than either one alone. It is apparently his contention that in the choice of prophylactic chemical agents against gas gangrene sulfathiazole is best, "attacking most of the species that contaminate wounds; antitoxin is species-specific only. Moreover, the suppression of the other contaminants by sulfonamides removes elements which, if left to proliferate, might kill tissues and provide a nidus for the germination of the gas gangrene bacillus." From this very brief review of a relatively short paper by a distinguished bacteriologist, it might well be judged that sulfathiazole is a sulfonamide preparation of choice to place in open wounds, whether obtained in war or under civilian conditions. Apparently antitoxin is a better prophylactic agent against gas gangrene than is sulfathiazole.

HOSPITAL STAFF TRANSACTIONS AND CLINICAL MEETINGS

TOURO INFIRMARY New Orleans

The regular monthly meeting of the Medical Staff was held on March 11 at 8 p. m. The first presentation on the program for the evening was a clinico-pathologic conference led by Dr. Harvey Colvin. Dr. Michael DeBakey gave a clinical talk on "The Protection of the Operative Field with an Impermeable Adhesive Skin Coating—Vinylite Resin." The concluding feature of the program was a colored film exhibited by Dr. Dean Echols

illustrating "The Grasp Reflex Produced by Brain Tumor."

TOURO INFIRMARY New Orleans

The regular meeting of the Medical Staff was held on Wednesday, February 11 at 8 p. m. The following scientific presentations were made: Dr. Harvey Colvin, "Clinico-Pathologic Conference"; Dr. Sidney Copland, "Surgical Management of Cases of Iodine-Fast Hyperthyroidism."

TRANSACTIONS OF ORLEANS PARISH MEDICAL SOCIETY

CALENDAR OF MEETINGS—APRIL

- April 1—Wednesday—Clinico-pathologic Conference, Charity Hospital Morgue Amphitheatre, 1:30 p. m.
Hutchinson Memorial Clinic Staff, 8 p. m.
Mercy Hospital Staff, 8 p. m.
- April 2—Thursday—Clinico-pathologic Conference, Touro Infirmary, 11:45 a. m. to 12:15 p. m.
- April 6—Monday—Orleans Parish Medical Society, Board of Directors, 8 p. m.
- April 7—Tuesday—Eye, Ear, Nose and Throat Staff, 8 p. m.
- April 8—Wednesday—Clinico-pathologic Conference, Charity Hospital Morgue Amphitheatre, 1:30 p. m.
Touro Infirmary Staff, 8 p. m.
Women's Auxiliary, Orleans Parish Medical Society, Orleans Club, 3 p. m.
- April 9—Thursday—New Orleans Hospital Council.
- April 13—Monday—Orleans Parish Medical Society, Scientific Meeting, 8 p. m.
- April 15—Wednesday—Clinico-pathologic Conference, Charity Hospital Morgue Amphitheatre, 1:30 p. m.
Charity Hospital Surgical Staff, 8 p. m.
Clinico-pathologic Conference, Hotel Dieu, 8:15 p. m.
- April 16—Thursday—Clinico-pathologic Conference, Touro Infirmary, 11:45 a. m. to 12:15 p. m.
- April 17—Friday—I. C. R. R. Hospital Staff, 12:30 p. m.
New Orleans Hospital and Dispensary for Women and Children Staff, 8 p. m.
- April 20—Monday—Hotel Dieu Staff, 8 p. m.
Clinico-pathologic Conference, Baptist Hospital, 8 p. m.
- April 21—Tuesday—Charity Hospital Medical Staff, 8 p. m.
- April 22—Wednesday—Clinico-pathologic Conference, Charity Hospital Morgue Amphitheatre, 1:30 p. m.
French Hospital Staff, 8 p. m.
Catholic Physicians' Guild, 8 p. m.
- April 23—Thursday—Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.
DePaul Sanitarium Staff, 8 p. m.
- April 24—Friday—L. S. U. Faculty Club, 8 p. m.
- April 28—Tuesday—Baptist Hospital Staff, 8 p. m.

April 29—Wednesday—Clinico-pathologic Conference, Charity Hospital Morgue Amphitheatre, 1:30 p. m.

April 30—Thursday—Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.

TRANSACTIONS OF THE ORLEANS PARISH MEDICAL SOCIETY

During the month of March the Society held one regular scientific meeting and one joint meeting with the New Orleans Graduate Medical Assembly. The programs were as follows:

REGULAR SCIENTIFIC MEETING

Nutrition in Civilian Defense—Dr. Oscar Bethea.
Physicians in Civilian Defense—Dr. Val Fuchs.
Enrollment in the Armed Forces of the United States—Dr. Robert Strong.

JOINT MEETING

The Place of Medicine in the Country Today—Dr. Frank H. Lahey, Boston, Mass.

Remarks on Management of Heart Disease and Toxemia in Pregnancy—Dr. Samuel A. Cosgrove, Jersey City, N. J.

NEWS ITEMS

Dr. Urban Maes was recently elected to honorary membership in the Circle, honor scholastic society of the Louisiana State University.

Dr. Thomas Benton Sellers presented a paper on Obstetrical Emergencies at a recent meeting of the Sixth District Medical Society at Hammond.

Dr. Walter J. Otis was elected president of the New Orleans Society for Neurology and Psychiatry at a meeting of this organization on January 22 at Arnaud's Restaurant. Other officers elected were Dr. C. P. May, secretary-treasurer; Drs. H. R. Unsworth, T. A. Watters and G. F. Roeling, members of the executive committee. At this meeting Dr. Martha MacDonald presented two cases of neuroses in childhood.

Dr. Wm. H. Gillentine has recently been certified by the American Board of Internal Medicine, and elected a member of the American College of Physicians.

Dr. Frank L. Loria was recently elected a member of the Board of Directors of the local chapter of the Travelers Aid Society.

Dr. J. H. Musser gave the Leo Loeb Lecture at Washington University of St. Louis, on the evening of March 23.

EDWIN L. ZANDER, M. D., Sec.

LOUISIANA STATE MEDICAL SOCIETY NEWS

C A L E N D A R

PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
East Baton Rouge	Second Wednesday of every month	Baton Rouge
Morehouse	Second Tuesday of every month	Bastrop
Orleans	Second Monday of every month	New Orleans
Ouachita	First Thursday of every month	Monroe
Rapides	First Monday of every month	Alexandria
Sabine	First Wednesday of every month	
Second District	Third Thursday of every month	



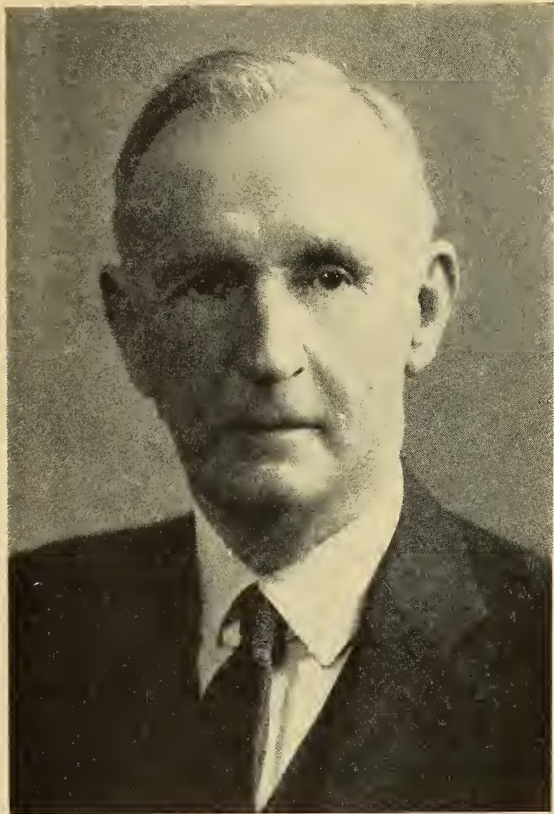
DR. KING RAND

The president of the Louisiana State Medical Society was born in Atlanta, Texas, February 3, 1888. Following his training in preparatory school he took academic work at Washington and Lee University and then entered the Tulane Medical School from which he graduated in 1913. In preparation for his life career, Dr. Rand did extensive postgraduate work before engaging in the practice of medicine. He worked for two years in pathology with the late John A. Lanford. He

then became an instructor in medicine at the University of Wisconsin and subsequently took post-graduate courses in the hospitals of New York City.

Dr. Rand was one of the earliest medical men called into active service in the last war. After spending a few months early in the fall of 1917 at Camp Greenleaf, Fort Oglethorpe, as a member of Base Hospital No. 24 (Tulane) he was ordered to France with the Unit where he spent nearly a year. He was practically two years in uniform. He returned to Alexandria where he again started to practice.

Dr. Rand has been active always in the interests of organized medicine. His advice, his good judgment and his willingness to work have advantageously been made use of by the State Medical Society, as well as by his Parish Medical Society. He was for some years secretary and later president of the Rapides Parish Medical Society. In the state organization he was Vice-chairman of the House of Delegates and for the past five years was the Chairman. Now his personality and his abilities as a leader have placed him at the head of organized medicine in the state. In addition to these honors and responsibilities it might be said that Dr. Rand was selected by Governor Jones to be one of the five medical members of the Louisiana State Board of Health. He was placed on the Medical Advisory Board No. 7 of Selective Service and was elected chairman by his associates. He is a member of the staff of Baptist Hospital in Alexandria. President Rand is one of the outstanding medical men in the state but in addition to his scientific and economic success in medicine it might be said that he has been equally fortunate in his married life. He has four children, one of whom graduated from the Medical School of Tulane two years ago and is now in the Army; he has another son who is also in military service.



DR. RICHARD OLIVER SIMMONS

The 1942 meeting of the Louisiana State Medical Society is dedicated to Dr. Richard Oliver Simmons of Alexandria, who for fifty years has been identified with organized medicine, and who one half a century ago treated his first private patient in Rapides Parish, where he has continued to practice to this date. He began life in Pike County, Mississippi, in May, 1868, and graduated from the Louisville Medical College in 1892. These fifty years have witnessed a great transformation in medicine and Dr. Simmons has contributed to the change: from operations in homes on pine tables with chloroform as the usual anesthesia to the ultra modern surgery; from the ravages and terrors of the yellow fever visitations and typhoid epidemics to more progressive preventive medicine. Through such changes for many years he was Health Officer of Rapides Parish. With four other physicians in 1903 he constructed the first hospital in Central Louisiana; which two years later was rebuilt and improved to be sold ultimately to become the original building of the Baptist Hospital, on which staff he still actively serves. He is credited with performing the first appendectomy and the first cesarean section in this part of the state.

Dr. Simmons and his associates formed the Rapides Parish Medical Society, an organization which has had an uninterrupted activity since the early

nineties; only one other of these men is living: Dr. J. A. White, Sr., of Alexandria. Dr. Simmons has made organized medicine a major part of his life; he served as President of the Louisiana State Medical Society in 1912; for many years he was Chairman of the Committee on Medical Defense. To attend its annual meetings a pleasurable duty, where in its councils never compromising with principle, fiercely condemning tendencies to state control, he championed a high ethical standard; never a middle-roader, intense in his hatred of those things he could not sustain; never hesitating to state the truth as he saw it; to defend the right and cling to his ideals.

He has long been a Fellow of the American College of Surgeons and the Southeastern Surgical Congress. His professional duties did not keep him from having interest in farming and a love for Walker hounds in a chase in the moonlight over the hills.

A pioneer surgeon, a good physician, a hard worker, ever an organization man, tops as a good fellow: on completing fifty years in medicine, we salute you.

THE ANNUAL ORATOR

Robert J. Usher, who will deliver the annual oration, Wednesday evening, was educated at the University of Wisconsin. He has served in library work at the University of Wisconsin and in the library of the University of California and for a number of years was reference librarian at The John Crerer Library in Chicago, one of the foremost scientific libraries in America. In 1927 he became librarian of the Howard Memorial Library, New Orleans, and since 1938 has been librarian at Tulane University in which are combined the libraries of Tulane, Newcomb College and the Howard Memorial Library. He has been curator of the New Orleans Academy of Sciences for the past twelve years.

He is a member of the American Association for the Advancement of Science and of various other historical and professional societies.

PROGRAM OF 1942 ANNUAL MEETING

Section on Medicine and Therapeutics

Dr. J. P. Sanders, Shreveport, Chairman

1. The Increasing Incidence and Complications of Chronic Bacillary Dysentery (Lantern Slides)—Dr. Daniel N. Silverman, and Dr. A. V. Friedrichs, New Orleans. To open discussion—Dr. Allan Eustis, New Orleans.

2. Vitamin Deficiency Status in Louisiana (Lantern Slides)—Dr. R. C. Lowe, New Orleans. To open discussion—Dr. Rhett McMahon, Baton Rouge.

3. The Future of the Coronary Thrombosis Patient—Dr. Charles T. Stone, Galveston. To open discussion—Dr. M. D. Hargrove, Shreveport.

4. Allergic Diagnostic Procedures (Colored Lantern Slides)—Dr. Vincent J. Derbes, New Orleans.

5. The Rational Management of Bronchiectasis (Lantern Slides)—Dr. Charles R. Gowen, Shreveport. To open discussion—Dr. Julius L. Wilson, New Orleans.

6. The Use of Sulfonamides in Acute Infections—Dr. D. B. Barber, Alexandria. To open discussion—Dr. J. P. Sanders, Shreveport.

7. The Use of the Various Insulins in the Treatment of Diabetes Mellitus—Dr. Roy F. Baskett, Texarkana, Arkansas. To open discussion—Dr. Edgar Hull, New Orleans.

Section on Nervous Diseases

Dr. M. S. Freiman, Pineville, Chairman

1. Experience in Selective Service Work—Dr. T. A. Watters—Dr. Walker Thompson, New Orleans. To open discussion—Dr. Edmund Connely, New Orleans.

2. Medico-legal Relations of Nervous and Mental Disorders—Dr. C. P. May, New Orleans. To open discussion—Dr. Edmund Connely, New Orleans. Followed by Dr. T. A. Watters, New Orleans.

3. Brain Abscess—Dr. Gilbert C. Anderson, New Orleans. To open discussion—Dr. Dean H. Echols, New Orleans. Followed by Dr. Mercer G. Lynch, New Orleans.

Section on Pediatrics

Dr. Charles J. Bloom, New Orleans, Chairman

1. Infant Feeding (Lantern Slides)—Dr. C. A. Stewart, New Orleans.

2. Blood Dyscrasias in the Newborn—Dr. S. G. Wolfe, Shreveport. To open discussion—Dr. W. R. Mathews, Shreveport.

(Program to be presented in conjunction with program of La. State Pediatric Society beginning 3:00 p. m. Monday, April 27).

Section on Public Health and Sanitation

Dr. Joseph S. D'Antoni, New Orleans, Chairman

Symposium—HEALTH PROTECTION OF CIVILIANS IN THE PRESENT WAR—

1. Nutrition—Dr. John H. Musser, New Orleans.

2. Emergency Water Supply and Sewerage Disposal—Mr. John H. O'Neill, New Orleans.

3. Potential Epidemics in Louisiana—Dr. E. C. Faust, New Orleans.

4. Prevention of Communicable Disease Under War Conditions with Special Reference to Immunization—Dr. C. W. McCoy, New Orleans.

5. Provisions for Children—Dr. E. B. Wharton, New Orleans.

Section on Gastro-Enterology

Dr. Gordon McHardy, New Orleans, Chairman

1. The Modern Management of Gastrointestinal Allergy (Lantern Slides)—Dr. Morris Shushan, New Orleans. To open discussion—Dr. A. A. Herold, Shreveport.

2. The Use of Sulfonamide Derivatives in the Digestive Tract (Lantern Slides)—Dr. J. Arnold

Bargen, Rochester, Minnesota. To open discussion—Dr. Donovan C. Browne, New Orleans.

Section on Bacteriology and Pathology

Dr. John H. Connell, New Orleans, Chairman

1. Clinico-pathologic Conferences in Non-teaching Private Hospitals (Lantern Slides)—Dr. John S. Couret, New Orleans. To open discussion—Dr. Edwin H. Lawson, New Orleans.

2. Spread and Metastasis in Carcinoma of the Cervix Uteri (Lantern Slides)—Dr. B. Pearson and Dr. Manuel Garcia, New Orleans. To open discussion—Dr. Peter Graffagnino, New Orleans. Followed by Dr. W. D. Beacham, New Orleans.

Section on General Surgery

Dr. Joseph E. Heard, Shreveport, Chairman

1. Clinical Application of Recent Knowledge Concerning Blood Substitutes—Dr. Urban Maes and Dr. Harry A. Davis, New Orleans. To open discussion—Dr. Mims Gage, New Orleans.

2. Carcinoma of the Colon and Rectum—Dr. Samuel A. Romano and Dr. William Trachtenberg, New Orleans. To open discussion—Dr. Maurice Lescale, New Orleans. Followed by Dr. Rawley M. Penick, Jr., New Orleans.

3. The Physiologic Conception of Tissue Resistance in the Surgical Diabetic—Dr. L. S. Charbonnet, Jr. and Dr. George F. Schroeder, New Orleans. To open discussion—Dr. George F. Schroeder, New Orleans. Followed by Dr. Howard R. Mahorner, New Orleans.

4. Some Cutaneous Manifestations of Systemic Disorders (Lantern Slides)—Dr. A. B. Loveman, Louisville, Kentucky. To open discussion—Dr. James K. Howles, New Orleans.

5. War Wounds of the Chest; Fundamentals of Treatment—Dr. Harlon W. Harrison, Shreveport. To open discussion—Dr. Frederick F. Boyce, New Orleans.

6. Ether as the Anesthetic of Choice in Prolonged Operations—Dr. Joseph A. Danna, New Orleans. To open discussion—Dr. John Adriani, New Orleans.

7. Abdomino-thoracic Gunshot Injuries — Dr. Frank L. Loria, New Orleans. To open discussion—Dr. Rudolph Matas, New Orleans. Followed by Dr. Joseph A. Danna, New Orleans. Followed by Dr. C. Grenes Cole, New Orleans.

Section on Gynecology and Obstetrics

Dr. Rhett McMahon, Baton Rouge, Chairman

1. The Use and Abuse of Pituitary Extract in Obstetrics—Dr. E. L. King, New Orleans. To open discussion—Dr. Joseph W. Reddoch, New Orleans. Followed by Dr. C. R. Mays, Shreveport.

2. Protein Malnutrition in Pregnancy—Dr. R. E. Arnell, Dr. D. W. Goldman and Dr. W. F. Guerriero, New Orleans. To open discussion—Dr. Edwin L. Zander, New Orleans. Followed by Dr. Earl Conway Smith, New Orleans.

3. Pool Plasma Bank as Used by the L. S. U. Department of Obstetrics and Gynecology—Dr. B.

J. Lehman and Dr. M. Suter, New Orleans. To open discussion—Dr. Harry A. Davis, New Orleans.

4. Causes and Treatment of Spontaneous Abortion—Dr. Ralph A. Reis, Chicago. To open discussion—Dr. Earl Conway Smith, New Orleans.

Section on Eye, Ear, Nose and Throat

Dr. Noel T. Simmonds, Alexandria, Chairman

1. Sinusitis in Disease of the Lower Respiratory Tract (Lantern Slides)—Dr. Ralph H. Riggs, Shreveport. To open discussion—Dr. Charles R. Gowen, Shreveport. Followed by Dr. F. E. LeJeune, New Orleans.

2. The Importance of Early Diagnosis in Glaucoma—Dr. Henry N. Blum, New Orleans. To open discussion—Dr. W. R. Buffington, New Orleans.

3. Vertigo (Moving picture)—Dr. E. Garland Walls, New Orleans. To open discussion—Dr. Dean H. Echols, New Orleans. Followed by Dr. Philip H. Jones, New Orleans.

4. Carcinoma of the Larynx (Moving picture)—Dr. Francis E. LeJeune, New Orleans. To open discussion—Dr. Mercer G. Lynch, New Orleans.

Section on Orthopedic Surgery

Dr. T. M. Oxford, Shreveport, Chairman

1. Management of Fractures and Dislocations of the Cervical Spine—Dr. Carson R. Reed, Jr., Shreveport. To open discussion—Dr. H. A. Durham, Shreveport.

2. Fractures About the Ankle—Dr. Rufus H. Alldredge, New Orleans. To open discussion—Dr. Guy A. Caldwell, New Orleans.

Section on Urology

Dr. Eugene B. Vickery, New Orleans, Chairman

1. Diagnosis and Treatment of Some Common Urinary Disorders in the Female—Dr. U. S. Hargrove, Baton Rouge. To open discussion—Dr. R. F. Sharp, New Orleans. Followed by Dr. M. H. Foster, Alexandria.

2. Renal Physiology in Hypertension (Lantern Slides)—Dr. Hilaire D. Ogden, Jr., and Dr. Gilbert C. Tomskey, New Orleans. To open discussion—Dr. Paul L. Getzoff, New Orleans.

Section on Radiology

Dr. Ernest C. Samuel, New Orleans, Chairman

1. The X-ray Consultation—Dr. T. I. St. Martin, Houma.

2. Intestinal Obstruction—Dr. M. D. Teitelbaum, New Orleans. To open discussion—Dr. Urban Maes, New Orleans.

3. Radium and Roentgen Therapy in 377 Cases of Carcinoma of the Breast—Dr. Harold G. F. Edwards, Shreveport. To open discussion—Dr. Lucien A. Fortier, New Orleans.

SPECIAL NOTICE

Attention all doctors between 45 and 65 years of age.

To all officers, past presidents, delegates, alternates, and members of the Louisiana State Medical Society. As you know, it is required for all

men between the ages of 45 and 65 to register on April 27 with the Selective Service Board. To avoid confliction with your attendance at the House of Delegates of the Louisiana State Medical Society on April 27 in New Orleans, we have information from the Selective Service Headquarters that one may register on April 25 and 26 at their local Selective Service Board Headquarters. It is incumbent upon every doctor within this age group to take advantage of this opportunity in order to be in New Orleans on April 27.

Remember, register on April 25 and 26.

CIVILIAN DEFENSE

During the latter part of February and the first two weeks of March Governor Sam H. Jones, with various members of the Civilian Defense Committee, made a tour of the entire state. This was deemed necessary in order to awaken the people to their responsibility and to the acuteness of the need for civilian defense.

Dr. Rhett McMahon, Emergency Medical Director of Civilian Defense in Louisiana, cooperated in this State program by attending meetings when possible and by having some one represent him on the tour at other times.

A great deal was learned concerning the problems of the various parishes in forming an adequate program for medical civilian defense. One of the great problems realized was the question so often raised as to where the funds were coming from to provide necessary equipment for first aid and casualty stations. On the whole, however, it was most gratifying to find the medical profession thoroughly imbued with realization of their responsibility. In most instances adequate medical set-up for the emergency had already been initiated. Some few parishes are lagging in this work but it is felt that with a more thorough understanding of the urgency of the need steps will be taken to supply adequate medical service.

There is no question about the loyalty of the medical profession through the state. In some of the metropolitan centers the medical program for civilian defense has advanced much further than undertakings by other agencies in this regard. This is a tremendous undertaking by the medical profession, calling for an all-out program. Let us congratulate ourselves on this medical preparedness with the hope that it will never be called into use but if it is we can be assured that the medical profession will be equal to its responsibility. It is the duty and privilege of every doctor in this state to lend his cooperation and assistance, not only to the Committee on Civilian Defense but also to his medical officers.

RESOLUTION OF THE STATE BOARD OF MEDICAL EXAMINERS

The present war emergency has necessitated continuous training of medical students in medical

colleges, making it almost impossible for the Louisiana State Board of Medical Examiners to keep intelligent check on the various hospitals for the intern requirement year.

A resolution was unanimously adopted "That the Board rescind its rule regarding a year's rotating internship in an approved hospital as a requisite for obtaining a certificate to practice medicine, and that copies of this be sent to the American Medical Association, the various State Boards of Medical Examiners, the Louisiana State Medical Society, the Orleans Parish Medical Society, and the Deans of the medical colleges."

FOURTH DISTRICT MEDICAL SOCIETY

The spring meeting of the Fourth District Medical Society was called to order March 10, at 8 p. m. by the vice-president, Dr. W. H. Browning in the amphitheatre of the Charity Hospital following dinner in the Shreveport Charity Hospital dining room.

The following doctors were present: Drs. Bodenheimer, Cassity, Hawkins, Garrett, LeDoux, Atkins, Trifon, Browning, Matthews, Eaddy, Knighton, Pirkle, Kerlin, Brown, Hall, Cook, Matthews, Galloway, Baker, Sentell, McIntyre, Hibbits, Fajour, Gowen, Gray, Riggs, Nichols, Jones, Fraser, Fletcher, Ferguson, Allums, Scott, Weber, Terry, Gilmer, Boaz, Hull, Dickens, Herold, Mays, Eddy, Hendrick, D. Kerlin, Webb, Tatum, Boggs, Stamper, Sanders, and Bender.

It was moved by Dr. Herold and seconded, that the minutes of the previous meeting be dispensed with, and the motion was carried unanimously. Dr. Gowen moved that the Fourth District Medical Society endorse Dr. B. C. Garrett for the 1942 presidency of the Louisiana State Medical Society; Dr. Riggs seconded the motion and it was carried unanimously.

Dr. Sam Kerlin nominated Dr. Browning as delegate from the Fourth District Society to the Louisiana State Society. The motion was seconded by Dr. Bodenheimer and carried unanimously.

Scientific Program

The first speaker of the evening was Dr. Edgar Hull, Professor of Medicine and Director of the Department of Medicine, Louisiana State University Medical School. By the use of a set of unique lantern slides, Dr. Hull gave a comprehensive discussion of "The Diagnosis and the Management of Nephritis." Dr. Hull's presentation was of special interest because of his thorough discussion of the causation and management of edema. His presentation was discussed by Drs. Shavin, Herold, Bodenheimer, and J. M. Gorton.

The second speaker of the evening was Dr. Karl Lavon Dickens, Assistant Professor of Medicine, Louisiana State University. Dr. Dickens gave an interesting discussion on "The Diagnosis and Management of Arthritis." Dr. Dickens' paper was of special interest because he covered the complete

subject of arthritis so well in the short period allotted him. His paper was discussed by Drs. Herold, Bodenheimer, and Palmer.

N. J. BENDER, M. D., Sec.

OCHSNER INDUCTED AS PRESIDENT OF SOUTHEASTERN SURGICAL CONGRESS

At the annual meeting of the Southeastern Surgical Congress in Atlanta, March 11, Dr. Alton Ochsner was inducted as president of the organization. Dr. E. H. Henderson of Louisville was made president-elect. Dr. Frederick Waas of Jacksonville was elected vice-president and Dr. B. T. Beasley of Atlanta was re-elected as secretary-general and treasurer. The next meeting will be held in Louisville.

NEWS ITEMS

The Louisiana Merit System Council has made announcement for clerical and stenographical positions in the State Board of Health. Anyone interested in such examinations should communicate with Mr. Jack H. Foster, 631 Main Street, Baton Rouge, Louisiana.

The Office of Civilian Defense announces the publication of the following books: 1. Handbook of First Aid. 2. Protection Against Gas. These books will probably prove of value to the physicians in charge of the medical aspects of medical defense.

At the eighth annual meeting of the Southeastern Section, American Urological Association, held in Chattanooga, March 19-21, 1942, New Orleans was selected as the meeting place for their 1943 sessions.

The urologists from New Orleans attending this meeting were: Doctors H. T. Beacham, R. F. Sharp, W. A. Reed, W. E. Kittredge, H. W. E. Walther and E. G. Vickery.

Under the auspices of the American College of Surgeons, a second series of War Sessions are being held throughout the United States. The New Orleans meeting was held Monday, March 16, down at the Jung Hotel. The session was addressed by representatives of the Office of Civilian Defense and Procurement and Assignment Service of the Office of Defense Health and Welfare Services.

The President of the United States by proclamation has designated the first day of May this year as Child Health Day.

The American Psychiatric Association announces a contest for the design of an emblem for the organization. Prizes amounting to a total of \$500 will be awarded. Details for this contest may be

obtained from Mr. Austin Davies, 8 Rockefeller Plaza, New York City.

Passed Assistant Surgeon Robert H. Onstott, who has been assigned to the Health Department, has been ordered to the United States Public Health Service District No. 4, Atlanta, Ga., to act as Liaison Officer in the Fourth Army Corps Area.

Assistant Surgeon Ralph W. McComas has been ordered to Springfield, Mo., for duty.

The regular monthly meeting of the Staff of the Hutchinson Memorial Clinic of the Tulane University held in the Amphitheatre, Wednesday, March 11, was represented by Professor Roy H. Turner and by Professor H. S. Mayerson.

ALPHA OMEGA ALPHA

The annual meeting of the honorary medical society, Alpha Omega Alpha, was held in the Hutchinson Memorial on Friday, February 27. The following members from the Senior class of Tulane Medical School were inducted into the organization: M. M. Ziskind, W. N. Valentine, L. E. Robinson, J. C. Mills, R. A. Carsley, J. W. Wiggins, H. H. Tift, J. H. Simons, V. E. Tedesco, J. V. Schlosser, R. M. Landry, W. C. Robinson.

The address of the evening was delivered by Dr. William B. Porter, Professor and Head of the Department of Medicine, Medical College of Virginia, Richmond, his subject being "The Heart Changes and Physiologic Adjustments in Chronic Anemia."

Dr. W. P. Gardiner was elected president to succeed Dr. E. Z. Browne. Dr. Julius Wilson was elected to take Dr. Gardiner's place, and Dr. J. N. Ane and Dr. Michael DeBakey were re-elected as counsellor and secretary, respectively.

NEW ORLEANS ACADEMY OF SCIENCES

A public meeting of this organization was held March 13 in Dinwiddie Hall of Tulane University. The purpose of the meeting was to discuss military and civilian disease prevention, more particularly as how it would affect the life and welfare of the residents of New Orleans. In line with this objective, the program was made up of three addresses delivered by Professor F. H. Wilson, Department of Zoology, Tulane University, who spoke on "Types and Habits of Rats Associated with Man." Dr. George W. McCoy, Department of Preventive Medicine and Public Health L. S. U.

Medical Center, spoke on "Plague and its Control." Dr. C. L. Williams, Medical Director, U. S. Public Health Service, talked on "The Control of Endemic Typhus Fever."

SECOND AMERICAN CONGRESS ON OBSTETRICS AND GYNECOLOGY

The program for this important gathering at St. Louis, Missouri, April 6-10, 1942, in the interests of American womanhood has been designed to supply needs of the varied groups concerned—the doctor, nurse, hospital administrator, public health worker, and educator. In order to develop closer contacts between these groups, a wide variety of presentations will be provided, including several innovations, three "Obstetric Information, Please" hours, clinical conferences, demonstrations of home deliveries, transfusions, obstetric procedures on the manikin, and opportunity for personal consultations with well-known specialists. There will also be a luncheon meeting, with a discussion of War Problems.

In addition there will be extensive scientific and technical exhibits.

In view of the expected large attendance, hotel reservations should be made in advance. The registration fee of five dollars may be sent to the Headquarters office, 650 Rush Street, Chicago, Ill.

CONFERENCE ON MEDICAL SERVICE PLANS

The first Conference on Medical Service Plans was held in Chicago on February 14, 1942, at the headquarters of the American Medical Association and the Palmer House. A total of sixty-four persons were present, including representatives from operating and proposed medical service plans in seventeen states and officers of state and county medical societies.

Mr. J. D. Laux, of Michigan Medical Service, who was elected Chairman of the Conference, indicated that interest in some form of prepayment for medical services has been moving along three well-defined fronts: (1) group clinic or consumer plans such as the Ross-Loos Clinic or the Transport Workers Medical Plan, of which there are seventeen such plans in operation with a total enrollment of 100,000 persons; (2) employee-employer mutual benefit associations (300 in operation) and the commercial insurance company plans (at least 250) providing cash indemnity benefits totaling \$365,000,000 annually; and (3) non-profit medical service plans sponsored by medical societies, of which there are 33 plans in operation in 9 states with an enrollment in excess of 750,000 persons. The non-profit medical society sponsored programs are developing most rapidly and give the best

promise of contributing toward a better distribution of medical service.

The entire day was devoted to consideration of the basic principles and major problems involved in medical service and limited surgical benefit programs sponsored by medical societies. The following are some particularly pertinent points brought out in the discussion:

Contract practice plans limiting service to a small number of physicians can not provide a satisfactory service for an entire community. Non-profit community-wide or state-wide service plans are the proper type of organization for prepayment of medical services.

The statement that voluntary plans lead to compulsory insurance applies to the chaotic situation created by a multiplicity of lay controlled or commercial plans not to medically sponsored community programs.

In medical society sponsored programs, the contribution of the profession is the offering of services without additional charge to persons in the under-income group. Under a plan providing cash indemnity, the only thing the medical profession furnishes—service protection to the individual—would be taken away.

Experiments in the full coverage type of medical service plan are being undertaken to determine the effect of such plans on the private practice of medicine; how such plans affect the physician-patient relationship; what problems arise in connection with the practice of specialties; the differences between urban, rural, and metropolitan practice; and all general problems relating to medical care.

A differential arrangement for specialists is a problem which one medical service plan treats in the following manner: When a subscriber uses a specialist as his family physician, the specialist receives general practitioner fees for such service. However, in the event the subscriber is referred to a specialist by his family physician for special services, an increased fee is paid. To be eligible for increased fees, the specialist must confine himself strictly to his specialty.

Enrollment based on individual physical examinations does not furnish as good selection as group enrollment.

The desirability of establishing somewhat uniform or model legislation for medical service plans was emphasized.

The question of the extent of joint operations with hospital service plans and the appropriate basis for cooperation lead to the establishment of a committee to meet with a committee from the hospital service plans.

It is of utmost importance to establish a centralized agency for the collection and dissemination

of information. R. G. Leland, M. D., Director of the Bureau of Medical Economics of the American Medical Association, outlined a program of coordination through establishment of a glossary of terminology, an organizational outline of the plans, and a composite tabulation of financial and statistical reports.

The Conference concluded with the appointment of a committee to determine the best method of establishment of a permanent organization of medical service plans throughout the country.

A LETTER TO THE PROFESSION

My dear Doctor:

The month of April has been designated by proclamation by President Roosevelt as "Cancer Control Month." During this month an intensive educational campaign will be carried on by radio, newspaper articles, magazine articles and addresses by medical and other individuals interested in cancer, on the prevention and curability of this dread disease.

It is highly possible that you may be called upon by some woman in your location to render assistance in this campaign by making talks to lay groups and it is to be hoped that you will offer your services in this movement.

During the month of April the Women's Field Army, which is directed by the American Society for the Control of Cancer, will put on a campaign of enlistment in an effort to raise funds to continue and further the educational campaign on cancer. Seventy per cent of the amount of money that is received in this State will be spent in such work in Louisiana.

For several years there has been an educational campaign of increasing intensity on cancer prevention and the people have become relatively "cancer conscious" with the result that more and more of them are seeking medical advice and medical attention. We know that the best hope of the cancer sufferer is an early diagnosis and the public is becoming aware of that fact with the result that they are visiting their doctors for a complete physical examination.

In making these examinations it is earnestly requested that where women are concerned, a special examination of the breast and uterus be made as they realize that if such is not done they have not had a complete examination and the fear of cancer has not been relieved. It has been found that a routine examination of healthy women of all ages will frequently reveal early malignancy of the cervix or the mammary gland and it is to be hoped that the patients who come to you for such a study will not leave you with the feeling that they have not been completely examined.

Trusting that you will give your interest and attention to this very important movement, I am,

Yours very truly,

EDWIN H. LAWSON, M. D.,
Chairman
Committee On Cancer

FEDERAL HOSPITALIZATION PROGRAM

The following letter is published as a partial rebuttal to the editorial that appeared in the Journal last month:

Dear Doctor Musser:

Permit me to acknowledge your letter of February 24, advising me of your objections to the "proposed Federal hospitalization program."

In his Budget Message of January 5, 1942, transmitted to Congress on January 7, the President said (in part):

"I recommend an increase in the coverage of old-age and survivors' insurance, addition of permanent and temporary disability payments and hospitalization payments beyond the present benefit programs, and liberalization and expansion of unemployment compensation in a uniform national system. I suggest that collection of additional contributions be started as soon as possible, to be followed 1 year later by the operation of the new benefit plans."

As is required by law, the Social Security Board has been studying methods of providing various ways of strengthening the social insurance system and has given considerable attention to the possibility of providing "hospitalization payments." No specific plan has yet been advanced.

For the purpose of studying the matter together, the Social Security Board has had conferences with representatives of hospital groups and of "Blue Cross" plan administrators, has discussed with them possible plans, and has explored various alternatives with them. Some one may have created an impression that there is a definite plan and that it would have certain broad or vague deleterious consequences for physicians, hospitals or the public. This is unfortunate, misleading and, I think, unfair to those to whom it has been communicated.

I need scarcely assure you that we have no interest in advancing or supporting "half-baked, poorly thought out schemes," in war time any more than in peace time. I would therefore suggest that judgment be suspended until there is opportunity for the President's general recommendation to be considered carefully by appropriate committees of Congress on the basis of a definite plan.

Sincerely yours,

PAUL V. McNUTT,
Administrator.

BABIES IN AIR RAIDS

Instructions as to the special care of babies in the event of an air raid, based in part on the experience of London and other English cities, were made public today by the American Committee on Maternal Welfare.

In view of the general possibility of air raids on American cities, particularly in the coastal zones, the committee regards it as important that American mothers understand and prepare well in advance for the task of protecting their babies. The committee is composed of the leading medical, public health, nursing and hospital organizations of the country and can thus speak with authority.

Aside from the immediate need of shelter from bomb explosions, the most important fact to keep in mind, the English have learned, is that the mother's mental attitude is baby's best guarantee against air-raids.

"However frightened you may feel," the committee quoted from instructions issued by the British National Baby Welfare Council, "keep outwardly calm and unflurried, so that the child's confidence in your own protectiveness may not be shaken.

"Never speak of the raid in the child's hearing if you can avoid it. Mental impressions are formed very much earlier than most people realize. Many of the problem cases among grownups of the present day owe their condition to their parents having talked continually in the presence of the children about past and future air raids, about their own terror, and the effect of this on the child. The following words are as true today as when they were written thousands of years ago: "In quietness and confidence shall be your strength."

When the raid signal sounds, the first move should be in the direction of the nearest shelter. If there is no shelter, take the baby to the safest room in the house, or to a closet under the stairs or under a table or bed, so that he may be protected from flying debris, which presents the most frequent danger.

Take with you garments enough to keep him warm according to the season, a basket or pillow on which he can lie, a first aid outfit in case of need; a toy to amuse him; his bottle of milk and bottle of water, together with extra diapers and related equipment.

The baby's ears should be blocked with cotton wool to minimize the effects of concussion, leaving plenty outside so that it may be easily withdrawn afterward.

If the raid should come while the baby is away from either house or shelter—for an airing in the park, for instance, find the nearest wall or ditch,

however low, place the baby on the ground beside it, with pillows from the baby carriage or a heavy coat under and over him, and lie down beside him.

The problems of baby and mother in wartime and their safety and well-being under all circumstances, will be discussed by experts from all over the Americas at the second annual Congress on Obstetrics and Gynecology, sponsored by the committee, in St. Louis, April 6 to 10.

HEALTH OF NEW ORLEANS

The Bureau of the Census, U. S. Department of Commerce, has reported for the week ending February 14, there were 170 deaths in the city as contrasted with only 123 the week previous. Of these deaths, 106 occurred in the white population and 64 in the negro. Nineteen of the deaths were in children under one year of age, divided 10 white and nine negro. There was a fairly sharp reduction in the total number of deaths of the city for the week ending February 21 as contrasted with the week previously. There were 101 deaths in the white population and 53 in the negro population for a total of 154. Of the 10 infant deaths the number was divided equally between the two races. The following week closing February 28, there was an increase in the white deaths of eight, and diminution in the colored population of 13. The 109 white deaths and the 40 negro deaths also contain 11 children under one year of age in the first category and five in the second category. There was a sharp drop in the number of deaths in the City of New Orleans for the week which ended March 7. Of the 107 demises in the city, 71 were in the white population, 10 of which were in children under one year of age, and 36 in the negro, and only three infant deaths. So it might be noted that in the three year average in the corresponding week of the year that there should have been expected 171 deaths. This represents a pronounced drop in the mortality instance and rate in the city.

INFECTIOUS DISEASES IN LOUISIANA

The morbidity report of the Section of Epidemiology of the Louisiana State Board of Health shows that for the week closing February 14 as usual syphilis led all other reportable diseases with a total of 196 cases listed in the weekly morbidity report. Other diseases occurring in numbers greater than 10 include, 112 cases of measles, 76 of gonorrhea, 51 of pneumonia, 38 of mumps, 25 each of pulmonary tuberculosis and chickenpox, 23 of influenza, and 18 of chancroid. In this week there was discovered a case of poliomyelitis in Bossier Parish. A typhus fever patient was found in Acadia Parish. The total number of reportable deaths is considerably increased by the cases reported from army camps. It should be noted this

week that measles was mildly epidemic throughout the State. For the week closing February 21, there were recorded 256 cases of syphilis, 70 of gonorrhea, 53 of measles, 49 of pulmonary tuberculosis, 48 of chickenpox, 27 of pneumonia, 17 of mumps, and 14 of chancroid. Of the rarer diseases, one case of poliomyelitis was reported from Orleans Parish, three cases of typhus fever from Madison Parish, and two cases of undulant fever, one from Lafourche and one from Rapides Parish. For the week which closed February 28, there are found to be 162 cases of syphilis reported, followed in order of frequency by these diseases, 83 of measles, 38 of gonorrhea, 33 of pulmonary tuberculosis, 28 of acute pneumonia, 22 each of mumps and of chickenpox, and 11 of influenza. An additional case of poliomyelitis is reported from Orleans Parish this week, one of typhus fever from Iberville Parish, and one of undulant fever from Vermilion Parish. For the first week in the month of March there were a very large number of venereal cases reported. For instance there were 197 instances of syphilis, 190 of gonorrhea, and 28 of chancroid. The State Epidemiologist has made this notation that "The magnitude of these figures is due to the accumulation of reports from army camps over a period of several weeks before they were transmitted to the Department of Health." They do not represent the number of cases that might have occurred in the civilian population. During this week the mild epidemic of measles apparently continues, 85 cases were reported. Other diseases of considerable frequency include 38 instances of chickenpox, 25 of pneumonia, 17 of mumps, and 15 of pulmonary tuberculosis. There were three cases of meningitis reported this week, and two of poliomyelitis, one from Orleans and one from Webster Parish. Four cases of typhus fever were discovered, two in Orleans, and one each in Allen and St. Mary Parishes.

DR. GEORGE KING LOGAN

One of the most beloved practitioners of medicine in the City of New Orleans died suddenly March 21 while making his professional rounds.

Dr. Logan was born in 1873 and graduated from Tulane University Medical School in 1899. He practiced continuously in the city since that time.

Dr. Logan's life as a physician should be an example to all physicians and more particularly the younger generation of doctors. Thoughtful and kind, he was always a comfort to his sick patients. They loved and trusted him. Quiet and sincere, Dr. Logan knew his limitations and never hesitated to ask for the advice of others if he thought it necessary. He leaves behind him a heritage of work well done and a life well spent.

WOMAN'S AUXILIARY

Louisiana State Medical Society

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Luncheon—Mrs. Edgar Burns.

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Pages—Mrs. Edmond Souchon.

MONDAY, APRIL 27

1:00 p. m.—Registration—First Floor Lobby—Roosevelt Hotel

TUESDAY, APRIL 28

ROOSEVELT HOTEL

9:00 a. m.—Opening Meeting, Louisiana State Medical Society.....Grand Ballroom

10:00 a. m.—Pre-convention Executive Board MeetingPan-American Room
Mrs. Aynaud F. Hebert, presiding

Invocation—Rabbi Julian B. Feibelman

2:00 p. m.—General Session—Mrs. Aynaud F. Herbert, presiding
 Invocation—Rt. Rev. Msgr. Peter M. H. Wynhoven
 Address of Welcome—Mrs. Isidore Cohn, New Orleans
 Response—Mrs. Cecil O. Lorio, Baton Rouge
 In Memoriam—Mrs. James W. Warren, New Orleans
 Piano selections—Mrs. Edmond Souchon.
 Presentation of flowers—Dona Gayle Browne and Helen Sanders
 Benediction—Rev. N. H. Melbert
 Reading of Minutes
 Reports:—State Officers, State Committees, Parish Presidents, Special Committees
 Report of Woman's Auxiliary to S. M. A.—Mrs. William B. Clark, New Orleans
 Report of Woman's Auxiliary to A. M. A.—Mrs. Arthur A. Herold, Shreveport
 Unfinished Business
 Recommendations of Executive Board
 New Business
 Report of Nominating Committee
 Election of Officers

Introduction of New Officers
 Announcement by New President
 Adjournment

WEDNESDAY, APRIL 29

10:30 a. m.—Post-convention Executive Board Meeting—Pan-American Room, Roosevelt Hotel—Mrs. Clarence B. Erickson, presiding
 1:00 p. m.—Luncheon—Orleans Club—In honor of Mrs. Clarence B. Erickson
 Toastmistress—Mrs. S. Chaille Jami-son

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BOOK REVIEWS

Endocrinology: The Glands and Their Functions:

By R. C. Hoskins, Ph.D., M.D. New York, W. W. Norton Co., Inc. Pp. 388. Price \$4.00.

This book summarizes in an easily readable manner, for the intelligent lay reader, the medical student, and to a lesser extent, the physician, our current knowledge of the glands of internal secretion. The lay reader will be required to read with a dictionary at hand, for though the book is clearly and simply written, the vocabulary is still technical.

The book is well written and the contents sound, but it will make a more valuable addition to an academic rather than a medical library.

B. BERNARD WEINSTEIN, M. D.

Essentials of Endocrinology: By Arthur Grollman, Ph. D., M. D. Philadelphia, J. B. Lippincott Co. 1941. Pp. 480. Price, \$6.00.

The author prefaces his book by stating that "clinical endocrinology is frequently befuddled by

accepting unproved assumptions as basic facts and building upon the insecure foundations thus established, a maze of fanciful and ill founded conjectures." This is true. It is equally true that clinical endocrinology is "befuddled" by books dealing inadequately with clinical endocrinology. This book contains much valuable data on the embryology, gross microscopic and comparative anatomy, pathology, physiology and pharmacology of the various endocrines. The appended clinical discussions are of decidedly less value. Because so much basic material is well organized and presented, the book is a worthwhile addition to the library of those interested in the subject.

B. BERNARD WEINSTEIN, M. D.

Laboratory Manual of Physiological Chemistry: By D. Wright Wilson. 4th ed. Baltimore, Williams & Wilkins Co., 1941. Pp. 298. Price \$2.50.

The fourth edition of this 300 page laboratory manual achieves a nice balance between the stand-

ard tests, preparations and quantitative estimations. The material is clearly presented in logical sequence, and should be readily comprehended by the student.

A. O. KASTLER, PH. D.

Diseases of the Thyroid Gland: By Arthur E. Hertzler. New York, Paul B. Hoeber, Inc., 1941. Pl. illus. Pp. 670. Price, \$8.50.

This volume is an expression of the personal views of one who has had a tremendous experience in treating diseases of the thyroid gland. It is not a comprehensive study of thyroid disease including views expressed by other authors. The book contains no bibliography and in very few places does the author deign to mention other observers or their opinions. However this does not detract from the value of the book. It is interesting and informative, and it is a relief to read occasionally such medical literature free of references to other opinions and so filled with the author's, no matter how opinionated his ideas may seem. The author's insistence that thyroid disease is one process and that the different types of goiter are merely different stages of the same disease is supported by very suggestive clinical and pathologic evidence. He prefers total thyroidectomy for hyperthyroidism and toxic nodular goiter. Complete thyroidectomy in his experience leaves no untoward residuals and surprisingly enough, no evidence of myxedema. Again one is impressed with his insistence that thyroidectomy for fetal adenoma and nodular goiter should be undertaken as preventive therapy since the normal courses of these diseases result in hyperthyroidism or malignancy.

The book is replete with allegorical facetiousness, often earthy, and containing sometimes more pessimism than humor. It reminds one that the author who wrote this book is the same one who wrote the "Doctor and His Patients," disclosing the Mark Twainish inner pessimism of the genial humorous author who had previously written the best seller, "The Horse and Buggy Doctor."

HOWARD MAHORNER, M. D.

Gastric and Duodenal Ulcers: By Harold Aveery, D. Sc., M. B., MR. R. C. P. London, John Bale and Staples, Ltd., 1941. Pp. 110, illus. Price 7/6 d.

Herewith is presented a somewhat brief but complete discussion of peptic ulceration occurring in the stomach and duodenum.

A prerequisite knowledge of the anatomical and physiological features is followed by discussion of the "inherently predisposed." Therapeutic measures, acceptable and debatable, are offered; ulcer complications are given adequate medical coverage

and sufficient surgical consideration. The question of diets is touched upon.

As a library reference in its conciseness, it will stand as a valuable reference to medical students and general practitioners.

GORDON MCHARDY, M. D.

The March of Medicine: New York Academy of Medicine lectures to the laity, 1940. New York, Columbia University Press, 1941. Pp. 154. Price, \$2.00.

This one hundred and fifty-four page volume contains the excellent treatises of six of our foremost medical authorities favoring the specialties in which they became famous. The presentation of each subject is an unparalleled example of the individual's desire to have his knowledge of a field of medicine understood by the laity. Abraham Myerson reviews the relationship to inheritance of mental disease and stresses the importance of environment. Perrie Long adequately expounds on the present-day popular chemotherapy. Paul Reznikoff makes hematology understandable. The viruses, so little understood, are developed in an interesting manner by Thomas Rivers. A dramatic presentation of the rise of psychiatry from "Bedlam" is creditable to Richard Hutchings. In his usual masterful manner, Chevalier Jackson talks bronchoscopy.

On the whole, each of these six lectures to the laity exemplifies a manner of presentation edifying to the profession and educational to the laity. Any physician called upon to address the public will do well by himself should he emulate the work of these men.

GORDON MCHARDY, M. D.

Functional Pathology: By Leopold Lichtwitz, M. D. New York, Grune & Stratton, Inc. 1941. Pp. 567. Price, \$8.75.

The advance of medicine depends upon the understanding of the mechanisms which produce signs and symptoms. Dr. Lichtwitz, on the basis of wide experience in clinical medicine and laboratory work, has given us the results of his observations and study. He has tried to explain many gaps in our knowledge of disease by means of the hypothalamic-pituitary mechanism. This mechanism controls the vegetative functions of the body. Any disturbance in the hypothalamus and pituitary may therefore be responsible for widespread disturbances throughout the organism. Dr. Lichtwitz supports his theory with much important and interesting evidence which makes this book of value to anyone interested in internal medicine. The book contains many illustrations of important conditions which are not always easily obtainable. The publishers are to be congratulated upon the pleasing make-up of the volume.

JOSEPH ZISKIND, M. D.

Surgical Practice of the Lahey Clinic, Boston, Mass. Philadelphia and London, W. B. Saunders Company, 1941. Pp. 897, 376 illus. Price \$10.00.

This volume is made up of selected articles previously published by members of the Lahey Clinic staff, and presents standardized methods of managing problems arising in connection with a variety of surgical diseases. In addition to the section devoted to diagnosis and the surgical technic, there are contributions by the departments of pathology, anesthesia, radiology, and internal medicine. The material is grouped under the following headings: the thyroid gland; the esophagus and lungs; the breast; the stomach, duodenum, and small intestine; the biliary tract; the colon, sigmoid, and rectum; the pelvis; the kidney and prostate gland; the bones and joints; the brain, spinal cord, and nerves; and anesthesia.

The 376 illustrations include artist's drawings, photographs of gross specimens, reduced reproductions of x-ray plates, and photomicrographs. Bibliographies of the various articles are reproduced as originally presented, and there is a complete index to the entire volume.

AMBROSE H. STORCK, M. D.

Clinical Hematology: By Maxwell M. Wintrobe, M. D., Ph. D. Philadelphia, Lea & Febiger, 1942. Pp. 792, illus. pl. Price \$10.00.

The progress of hematology has been so rapid that the 792 pages of this volume are crowded, meeting the requirement of a concise thorough presentation. The 176 engravings and the 7 colored plates are the barely necessary illustrations.

Authoritative throughout with excellent chapter bibliographies, the entire work is well coordinated. The laboratory and the clinical aspects are brought together as a basis for accurate diagnosis. Hematological technic including sedimentation, hematocrit and bone marrow examinations are clarified. Blood metabolism is critically covered. The reader is led to a diagnosis in each instance along the simplest channels. Therapy is outlined, but no detail is omitted as is illustrated in the consideration given to the potencies of allergic reactions to and relative value of various degrees of refinement in liver extracts.

In accomplishing his purpose, presenting a comprehensive, complete and authoritative publication, the author has remembered his other object to avoid complexity and lend understandability to a subject which in its rapid technical growth has seemed to separate itself from the general practice of medicine. In this publication, valuable to student, teacher and practitioner, the author has laid the foundation for many a subsequent edition which I am sure the reception of this volume will call for.

GORDON MCHARDY, M. D.

Food and Beverage Analyses: By Milton A. Bridges, B. S., M. D., F. A. C. P. & Marjorie R. Mattice, A. B., M. S. 2n ed. thoroughly rev. Philadelphia, Lea and Febiger Co., 1942. Pp. 343. Price \$4.00.

This second edition of *Food and Beverage Analyses* presents a complete revision and expansion of a successful first edition. The new data include tables on the acidity of foods, their fiber content, their amounts of available carbohydrates and ionizable iron, and organic acids in fruits and vegetables. The data are concise, the arrangement is logical and the foods and food substances considered are inclusive from Creole gumbo to mince pie.

This attractively prepared manual should form a reliable reference source for such groups as dietitians, physicians and medical students in preparation of almost any form of diet.

RALPH H. HEEREN, M. D.

The Value of Health to a City: Two lectures delivered in 1873 by Max von Pettenkofer: Translated from the German, with an Introduction by Henry E. Sigerist, M. D. Baltimore, The Johns Hopkins Press. 1941. Pp. 51. Price \$1.00.

This accurate translation of Pettenkofer's two lectures given in Munich in 1873 in the hope of selling health to that city by an economical approach is reprinted from the *Bulletin of the History of Medicine*, Vol. X, No. 3, October, 1941, Pp. 473-503 and No. 4, November, 1941, Pp. 593-613. An interesting introduction outlining Pettenkofer's career ably prepares a background for perusal of these lectures. Craftsmanship throughout this brief book is completely satisfactory.

These lectures, classics of medical economics, remind us of their soundness when we realize we are attacking along the same lines today. Health arguments such as Pettenkofer presents should be within easy access to all health administrators and should be included in the training background of every student of Public Health.

RALPH H. HEEREN, M. D.

Rheumatic Fever in New Haven: Edited by John R. Paul, M. D. New York, Milbank Memorial Fund, 1941. Pp. 176. Price \$1.00.

The purpose of this book is stated "to see whether the types of epidemiological approach they describe are of value in shedding new light on what seems to be the most basic question in rheumatic fever: namely, what is the nature of this disease?"

In this series of articles, each well presented and summarized, there is an excellent but not voluminous statistical accumulation. The clinical investigation forming the background is a survey of hospital records, university students, comparison of several levels of social strata, both as to housing conditions and nutritional status, racial and familial relationship. The editing is excellent; the

three pages dedicated to the summarization of the previous 167 pages are adequate.

The chief contribution of this work is that it presents a method or study which may be used as an excellent example for the survey of any disease by a municipal public health group.

GORDON MCHARDY, M. D.

The Biological Fundamentals of Radiation Therapy: By Friedrich Ellinger, M. D., with a preface by Maurice Lenz, M. D. New York, Elsevier Publishing Co., Inc., 1941. Pp. 360. Price \$5.00.

This book is an English translation of the German edition which was published in 1935. Previous errors have been corrected, obsolete portions have been eliminated and more recent data have been added. The list of pertinent literature has been brought up to April, 1940.

This volume represents a compilation of the literature on the biological reactions to radiation therapy and consists of five parts besides the introduction. The First Part is devoted to the action of roentgen rays and gamma radiation of radium. The effects of these agents on the normal tissues and systems, on normal physiological processes, and on abnormal tissues are considered. One chapter in this section concerns the application of "grenz rays" in therapy.

The Second Part deals with corpuscular rays and includes a paragraph on neutrons. The Third Part is devoted to ultraviolet light and considers the effects of this agent on the various systems. The Fourth Part includes discussions of the actions of visible light and infra-red rays. The last chapter in this section is devoted to the diseases caused by light. General radiation biology and therapy are considered in the fifth and final section.

The bibliography is extensive and includes all important papers in the literature relating to the subject. The illustrations are good. This book should be of interest to the radiotherapist and biologist.

J. N. ANÉ, M. D.

The Doctor Takes A Holiday; An Autobiographical Holiday: By Mary McKibbin-Tarper, M. D. Cedar Rapids, Iowa, Torch Press, 1941. Pp. 349. Price \$2.50.

Elaboration of a diary, kept during a recent excursion of this widely traveled woman doctor, resulted in this fairly entertaining and instructive book. It was to have been a pleasure trip but introductions to numerous doctors greatly widened her sphere of interests and caused her to emphasize the medical aspects of her sight-seeing.

Those parts of the book dealing with India and China are especially interesting and the chapter "The Gentle Art of Healing in China" is quite well worth reading. Therein, a current belief, that Chinese physicians are paid to keep their patients

well is said to be pure fiction; also that they know little of preventive medicine and are not often consulted except for serious illness. Their zeal is stimulated, however, by the fact that their fees are apt to be larger when their patients recover.

While this is mainly a story of travel, which takes the reader into the midst of the Orient, it also has distinct sociological implications and relates interesting observations of activities and curious customs of the peoples she visited. The savoir faire with which our authoress journeyed alone through the fastnesses speaks well for her sportsmanship and her deep, sincere interest in humanity,

Much of the narrative is freshly told with appealing wit, humor and pathos and it is replete with anecdotes of human interest.

C. P. MAY, M. D.

X-Ray Therapy of Chronic Arthritis: By Karl Goldhamer, M. D. Quincy, Ill., Radiologic Review Pub. Co., 1941. Pp. 129. Price \$2.00.

This admitted preliminary report of one hundred patients suffering from a diagnosis of arthritis and treated by irradiation with x-ray, embraces the short period of only twenty-one months for observation. The drawings and radiograms are very supportive of the pathologic factors in arthritis and should be very informative to the specialist in roentgenology. However, the action of the x-rays on an inflamed or arthritic joint, is purely supportive of the reactions which occur in the application of the various forms of heat, light and physiotherapy, so commonly used in the present day handling of this disease. This is considered purely palliative at its best, and in multiple atrophic arthritis would be very difficult of application.

The text is well prepared and one will gain considerable knowledge on the subject of arthritis by reading the same. The findings in these diseased joints and treatment used by x-ray are portrayed with great precision.

P. T. TALBOT, M. D.

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THE PRESIDENT'S ADDRESS*

KIND RAND, M. D.
ALEXANDRIA

For more than three score years my worthy and esteemed predecessors have on similar occasions delivered addresses except when prevented by flood, panic or pestilence. Terminating a year of willing servitude and not unmindful of the honor conferred upon them they have spoken, not to give an accounting of their labor, but on the eve of their departure from office, to give, like the song of the swan, final expression to those things close to their hearts. They have set a noble standard; to emulate it is difficult. The inspiration of their theme was success attained by hard effort; accomplishment had for an honorable price, voicing always hopes for a more glorious future.

I too am proud; I accepted the task determined to follow their precept and example, but unmindful of the danger which surrounds us; unmindful of an awful process of attrition which threatens our high estate, whereby we become no longer masters of ourselves and of our own affairs. The physician, one of the proud handiworks of man, stands insecure in his position, not so proud as his predecessor, possibly to become subservient as the result of his own indifference. Properly to appraise ourselves let's for a moment indulge in retrospect. As we survey the scene, there comes to mind the changing picture of the physician; the transition which has

taken place since our forefathers founded this great nation. This period is but a moment in the history of modern medicine, yet history relates that in the colonial and revolutionary days, when men were giants, the physicians were of equal stature; not only in the field of medicine were they supreme, but that in all phases of human endeavor did they take their deserved rank. If that all important human document, the Declaration of Independence were delayed in its birthing until now, do you presume that nearly one tenth of its signatures would be those of physicians? We need no answer. For such noble forebears there evolved an American character, a man beloved; closer to the hearthstone than a brother; wise in the ways of the heart, the mind, the soul, and the body; a guardian at birth, a counselor and a confessor in life and frequently a mute witness of the great physician at death. He has disappeared from the scene. We miss him; all mankind misses him. He was the family doctor. Unmindful of facts, we sometimes think of him disparagingly, in that he did not possess the scientific knowledge of today's medicine: the thought contains a modicum of truth, but reveals slight appreciation of this knowledge. It is but natural that each age attribute to itself the acme of all knowledge and achievement, forgetful of the accomplishments of the ages, and that today's truths are born of yesterday's facts and errors. Many of the practices of modern medicine can be traced back through long periods of time, some of them remote. No man can point the finger of derision at a group, among its members an Ephraim McDowell, a J. Marion Sims and a Crawford Long.

*Delivered before the sixty-third annual meeting of the Louisiana State Medical Society, New Orleans, April 28, 1942.

These things are related for a purpose, not to belittle progress in the art and science of medicine, but to point a lesson and adorn a tale. No sensible man would turn back to give up one single triumph of medicine, which has been proved to ease the patient, prevent disease, prolong or save life, but in achieving that progress have we not lost something? In depending upon the biochemist and the gamma ray have we not sacrificed the powers of observation and deduction? Why can we not grasp the one and hold to the other? As we have called art and science to our aid, we have to some extent adopted the artesian too. The art and science of medicine is no longer taught in all cases by one of the art, as manifest in the oath of Hippocrates; we have borrowed from the academic post-graduate school their polished product and welcomed them in our circle. Can we not accept, develop and utilize biochemistry without adopting the biochemist? Human nutrition may have its financial and economic angles but it is essentially a medical field and a medical problem, yet today many of the state and national committees to study and make recommendations on nutrition are dominated by the laity. Medical bacteriology has become the playground of the non-medical graduate and in medical periodicals can be read articles for the physician's consumption, with a hybrid authorship. Today throughout the land the practice of anesthesia has been surrendered almost in toto, the physician no longer collecting the fee, but in most instances it becomes the financial asset of the hospitals. With flashing neon sign and blaring radio we are reminded that the serious function and malfunction of the eye has become the legal domain of one beyond the pale. The hospital boards are predominantly controlled by others and more and more the hospitals are managed by men who have never studied medicine. Not so long ago by legislative act a board was created to direct the public health of this state and the law did not provide that a single physician had to be a member of said board, and but an administration or

so ago the state undertook a major hospital set-up throughout the state and not only was organized medicine not consulted but the governor refused to meet its duly elected representative. Since the tragedy of Pearl Harbor we have had the aborted suggestion from the National Government that the medical defense be supervised by social workers, and this same paternal Government in more peaceful times dictates fees for professional work much below, indeed very much below the accepted average over the whole country, with the additional burden of endless paper work on each patient treated. Helplessly we accept from numerous insurance companies a fee schedule much below par, complaining very little and doing nothing about it. Today we face the ridiculous situation of having the hospitals, with which we work hand in hand, entering the practice of medicine under their, as a whole, meritorious group hospitalization schemes, giving medical service to non-hospitalized patients in competition with private physicians and doing the same at a rate below the accepted level. Fearsome is the day when medical care insurance is developed and sold to that point and amount where by force, weight and numbers of policy holders, the insurance companies will dictate to the medical world what it shall receive for its services. The limitation set by law today for the care of the injured employee is frequently an injustice to both the physician and the hospital.

Within our present loose ranks are those who for the sake of temporary honor or financial gain will desert the great majority, selfishness overcoming honor. We witness our own professional brethren using unfair methods of competition and can do nothing about it. Daily we hear in court the testimony under oath with God as the witness of same, giving voice to things which no text ever related or experience taught, the same having weight with the court. This is but a short list of grievances; there is much more evidence that the American physician, once a man standing four-square, to some extent lord of all he sur-

veyed, is today gradually being subjected to a process of attrition, to a point of helplessness aided and abetted to some extent by quislings within the ranks.

What is the matter? To some extent it can be found in the social tendencies of the times. We cannot expect there will be made a law against it, the usual cure-all; the politicians do not care. Not in an appeal to reason with the public as judge; others have their own problems. Is it to be found in the halls of justice? There, although the generally accepted and acknowledged altruistic purposes of medicine are recognized as are the doctors' enormous contributions to charity and freely given aid to our fellowmen, we are condemned and found guilty. In that pronouncement is pointed out the way to ful-

fill the biblical admonition: "physician cure thyself." The way is clear. Only by a strong organization swinging to the left, bringing force to bear when needed, ever maintaining our high ethics and ideals to the point of suffering for our rights and if necessary temporarily losing our liberty, can we again be self respecting men, dictating medical affairs which is our privilege and our earned right. It is my earnest conviction that what is good for organized medicine is good for the nation, the state and the race. We can only rule in the present state of society by an organization that is strong in nature and powerful to enforce its mandates, call that organization by any name you please. The democracies felt secure; liberty is in danger. If we passively wait we will lose even that which we still retain.

PRACTICAL ASPECTS OF WATER BALANCE

EDGAR HULL, M. D.†
NEW ORLEANS

Water comprises 70 per cent of the body weight. All of the water in the body is free, none in chemical combination with other substances. About 75 per cent of the body water is in the cells, about 20 per cent is in the tissue fluids, and about 5 per cent in the blood plasma. The body tends to keep its water content constant, so that variations in intake of water produce corresponding variations of output. The body has an even greater tendency to keep its intracellular water constant, so that variations in total body water take place largely at the expense of the tissue fluids and the blood plasma.

The sources of body water are fluids ingested as such, free water contained in solid and semisolid foods, and water produced in the body by the combustion of foodstuffs. Under ordinary circumstances the largest single source of body water is the free water in solid and semisolid foods.

Water is lost from the body in the urine, the expired air, from the skin, and in the feces. Under ordinary circumstances the amount lost in the urine is greater than that lost by any other route.

Under normal circumstances there is a perfect balance between water intake and production on the one hand, and water output on the other. Under average conditions the balance among various sources and losses of water per day is about as follows:

Intake and Production		Loss	
Liquids as such.....	1000 c. c.	Urine	1500 c. c.
Free H ₂ O in foods.....	1200 c. c.	Sweat	500 c. c.
Water of metabolism	300 c. c.	Expired air	350 c. c.
		Feces	150 c. c.
Total		Total	
		2500 c. c.	

If environmental conditions remain constant, particularly environmental temperature, variations in the total intake of fluid are manifested principally by corresponding variations in the output of urine. Healthy persons will remain in water balance under ordinary environmental temperature if the total available water is reduced to as low as 1500 c. c. daily, so that a healthy person will get along for a time at least if he takes no fluid at all as such, but

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consumes a normal amount of solid and semisolid food. Under such a circumstance his urinary output would be only about 500 c. c. a day; if his kidney function is normal, adequate excretion of all urinary constituents would be attained in this small volume, but kidney damage would eventually supervene.

If the intake of available water is further reduced, water balance is maintained for a time by a further reduction in the output of urine and by a diminution in sweating and the fluid secreted by the glands of the gastrointestinal tract. An individual under such a circumstance would have a dry skin and dry tongue without actually being dehydrated. However, because of the greatly reduced output of urine, urinary constituents would accumulate in the blood, and the patient might die of uremia without extreme dehydration of his body tissues. If any other factor supervened which would prevent conservation of fluid by the kidneys and gastrointestinal tract, such as polyuria due to diabetes, or vomiting, or diarrhea, marked dehydration would occur, which would be manifested by softness of the eyeballs and looseness of the skin. Death under these circumstances might be due to a combination of dehydration and uremia, or even to dehydration alone.

A healthy person, conversely, will remain in water balance if his intake of fluid is tremendously increased, provided other factors, especially his intake of sodium, remain unchanged. Thus he can take as much as 3,000 to 4,000 c. c. of water by mouth in a single day and compensate readily by an increased output in urine. If a large amount of water, as for example a quart, is taken at one time, there is a delay of about an hour during which no diuresis occurs, and then suddenly over a period of an hour or less, almost the exact amount of fluid ingested is excreted by the kidneys. The mechanism of this water diuresis is not understood. Immediately after the water is taken, an increase in blood volume occurs, but the blood volume returns to normal before diuresis begins. However, under certain circumstances which will be discussed

later, the fluid output of the body is less than the intake, and water accumulates in excessive amounts in the tissue spaces. If the accumulation is gradual, it is manifested at first by a gain in weight; when the amount retained exceeds eight or ten pounds, discernible edema is present. In extreme retention fluid accumulates in the body cavities, edema of the lungs sets in and death by "drowning" occurs.

Unfortunately water balance is not a simple balance between intake and output. Water balance is intimately linked with electrolyte balance and thus with acid-base equilibrium, and also with the blood pressure in the capillaries, with the permeability of the capillary walls to colloid particles, with the concentration of the proteins of the blood plasma, and with the secretion of certain hormones.

The most abundant cation of the tissue fluids and blood plasma is sodium, and the most abundant anions are chloride and bicarbonate. There is very little sodium in the cells; in these potassium is the principal cation. Cell membranes are not freely permeable to cations; hence the intracellular fluid is always low in sodium and the tissue fluid and blood plasma are always low in potassium.

The principal source of body potassium, sodium, and chloride is from ingested food, while bicarbonate is a product of body metabolism. Under normal circumstances the concentration of electrolytes in both the cells and body fluids is kept constant through the elimination or retention of water; also the relationship of cations to anions is kept constant by the retention or elimination of these substances in the urine, a process which affects the water balance. Thus the ingestion of large quantities of sodium chloride tends to cause retention of water in the body, so that the electrolyte concentration of the tissue fluids may remain constant. The increase in body water occurs solely in the tissue fluids; the plasma volume would tend to increase, but this tendency is counteracted by other factors which maintain blood volume. Similarly,

complete deprivation of salt results in a loss of body water at the expense of the tissue fluids. Loss of chloride without sodium, as in the vomiting of gastric juice, results in increased excretion of sodium in the urine so that a constant anion-cation ratio is preserved; water is required for this excretion, so that a net loss of body fluid results. The occurrence of acidosis due to any cause results in the urinary excretion of acid sodium salts, and thus leads to loss of body water.

Of great importance in water balance is the exchange of water between blood plasma in the capillaries and the fluid in the tissue spaces which surround them. This exchange is normally accomplished by the hydrostatic pressure of the blood within the capillaries, which tends to force fluid out through the capillary walls, and the osmotic pressure exerted by the plasma proteins, which tends to "suck" water into the capillaries. Under normal circumstances these counteracting forces are delicately balanced, so that near the arterial end of the capillary the fluid passes out, while near the venous end it is drawn in. This balance may be disturbed by three factors, each of which would tend to cause loss of fluid from the capillaries into the tissues, and thereby cause retention of water in the body. The first of these is increase of the blood pressure within the capillaries; this is usually due to heart failure or venous obstruction. The second is depletion of the plasma proteins, which may be due to starvation, liver disease, or loss of protein in the urine. The third is damage to the capillary walls, so that they become permeable to protein which escapes into the tissues and thereby lowers the effective osmotic pressure of the blood; this occurs in an outstanding form in surgical shock, in which a large portion of the blood plasma escapes suddenly into the tissue spaces. This state of affairs also probably obtains in acute nephritis.

Water balance is also affected by the antidiuretic hormone of the posterior pituitary and the steroid hormones of the adrenal cortex and the gonads. A posterior

lobe hormone, probably elaborated under the influence of the hypothalamus, inhibits the excretion of water by the kidney under normal circumstances; when this hormone is deficient, tremendous diuresis occurs, much like the diuresis due to ingestion of large quantities of water. In such an event water balance is maintained by a greatly increased fluid intake, and electrolyte balance is not disturbed. The antidiuretic hormone of the pituitary is probably concerned in the diminution of the urinary output which occurs when the fluid intake is reduced in normal persons, or when fluid is lost from the body due to vomiting or diarrhea or marked sweating. There is some evidence that secretion of excessive amounts of this hormone may play a role in the production of edema in the nephrotic syndrome.

The steroid hormones of the adrenal cortex and gonads cause retention of sodium in the body and thus favor the retention of water. Synthetic steroid hormones, such as stilbestrol and desoxycorticosterone, have the same effect. Physiologic and pathologic variations in the quantities of these hormones secreted affect water and electrolyte balance considerably. Premenstrual edema, for example, is probably due to sodium retention resulting from the effect of progesterone. In Addison's disease, deficiency of adrenal cortex hormones leads to marked loss of sodium and thus to dehydration.

Vitamins also affect water balance indirectly. The most important of the vitamins in this regard is thiamin, the lack of which leads to cardiac insufficiency with resultant increase in the hydrostatic pressure within the veins and capillaries.

RULES AND PRINCIPLES GOVERNING WATER BALANCE

It is thus clear that water balance depends not only on the intake and loss of water *per se*, but also upon intake of food, the intake and loss of electrolytes, the acid-base balance, the integrity of cardiac and kidney function, and upon other factors as well. It is also clear that the maintenance of fluid balance in the treatment of disease is not a simple matter of giving enough but

not too much water. In most cases, however, it is largely a question of how much water and salt to give, as the various factors concerned in retention and loss of water must be considered, and routes of administration of fluid are also important. The following are general rules and principles which take into consideration most of the factors which have been discussed, and which may be applied to most of the problems of water balance.

1. In the absence of factors which cause excessive fluid or electrolyte loss, an average adequate intake of fluid for a patient who can take an average diet is about 1000 c. c.

2. The less solid food taken, the more fluid as such is required. On a "full liquid" diet, the average requirement is about 2000 c. c., and if nothing is given by mouth the requirement is about 2500 c. c. Electrolyte balance need give no concern if a reasonable quantity of food and fluid can be given by mouth, but if all liquids are given parenterally salt and glucose must be supplied, and vitamins and protein must be given (thiamin, nicotinic acid, ascorbic acid, blood plasma or whole blood) if it is necessary to continue parenteral feeding for more than a few days. A patient can ordinarily be kept in fluid and electrolyte balance and in a fair state of nutrition for several days if 1000 c. c. of 5 per cent glucose in normal saline and 1500 c. c. of 5 per cent glucose in distilled water are given daily. This supplies 2500 c. c. of water, 8.5 grams of salt, and 600 calories.

3. If excessive fluid and electrolyte loss has occurred or is occurring, extra fluid and salt must be supplied, the amounts being gauged largely by careful observation of the patient and by measurement of the urinary output. Estimation of the approximate amounts of fluid and electrolyte lost by other routes is of some value, but it should be remembered that such estimates are rarely accurate. The value of determination of the CO_2 combining power of the blood plasma and the plasma chlorides is limited because of the marked tendency of the body to maintain a normal concen-

tration of electrolytes in the blood plasma in spite of great reduction or increase in the total amounts of these substances in the body.

4. The common causes of excessive fluid and electrolyte loss, and thus the common causes of dehydration, are vomiting, diarrhea, atony of the gastrointestinal tract, excessive sweating, and diuresis.

5. The common causes of excessive fluid and electrolyte retention, and thus of overhydration are the excessive administration of water and salt or salt alone, heart failure, nephritis, nutritional deficiency, administration of steroid hormones, marked albuminuria due to any cause, and toxic and allergic states which may affect capillary permeability. Next to heart disease and nephritis, perhaps the commonest cause of overhydration is overtreatment of dehydrated patients.

6. The signs of dehydration are oliguria, looseness of the subcutaneous tissues, dryness of the tongue, and in extreme cases softness of the eyeballs and stupor or coma. In certain cases the CO_2 combining power of the blood plasma and the plasma chlorides are altered, and the relation of these determinations one to the other may give important clues as to the causes of the dehydration. These determinations, if made upon the same specimen of blood, constitute an accurate index of the *concentrations* of sodium and chloride in the blood plasma and tissue fluids, but give no inkling at all as to the total *amount* of these substances in the body. Nearly always when dehydration is present both sodium and chloride as well as water are needed, irrespective of the cause of the dehydration. The most reliable sign of incipient dehydration is diminution of the output of urine.

7. The signs of overhydration are increased tension of the subcutaneous tissues, puffiness of the face, and in extreme cases generalized edema, with dyspnea due to pulmonary edema and hydrothorax. The output of urine is usually reduced, but it may be normal, rarely high. The most reliable sign of early overhydration is increasing weight; when this factor cannot be deter-

mined puffiness of the face is the earliest definite sign. Overhydration always means an increase of total body sodium, and therefore of chloride as well; it thus calls for temporary complete interdiction of salt, as well as for restriction of water.

8. Normal water balance is manifested by a normal output of urine (1200-2000 c. c.) daily, by normal tension of the subcutaneous tissues, and by normal moisture of the tongue. A daily urinary output in excess of 2000 c. c. may mean that too much fluid or too little salt is being given. Generally such an occurrence, if the patient looks well, calls for slight decrease in fluid and increase in salt intake. If signs of dehydration coexist with a large urinary output the intake of salt should be increased. If signs of overhydration coexist with a large urinary output the intake of salt should be decreased. Normal water balance is easily maintained in the presence of normal cardiac and renal function if one measures the urinary output and watches for early signs of overhydration and dehydration.

9. Impairment of kidney function increases the difficulties in maintaining water balance, and renders the individual more susceptible to dehydration and overhydration. Generally speaking, moderate or marked impairment of kidney function is accompanied by compensatory polyuria which may predispose to electrolyte and water depletion; hence in such cases more salt and water are needed. However, the ability of the damaged kidneys to excrete sodium and chloride is impaired, so that salt retention and consequent overhydration occur if the optimal salt intake is exceeded. Even in the presence of complete anuria overhydration will not be produced, nor dehydration corrected, if salt is withheld completely. The usual principles of maintaining normal hydration apply in cases of impaired kidney function, but more careful observation, which should include NPN determinations, is indicated. Generally speaking, considerably more water and a little more salt are needed in order to maintain

an adequate urinary output and normal water content of the tissues.

10. Particularly difficult to treat are patients in whom both the cardiac and kidney functions are impaired. The tendency in these patients is toward overhydration, with a diminished output of urine and nitrogen retention. Extremely careful observation is necessary, which should again include daily determination of the blood non-protein nitrogen. Generally speaking, fluid should be forced in order to promote a large urinary output, and salt restricted so as to prevent the formation of edema. Too drastic salt restriction may result in dehydration even though large amounts of fluid are given. The aim is to restore normal hydration of the tissues and a normal level of the non-protein nitrogen of the blood.

11. If the gastrointestinal tract is functioning normally, fluids and food should be given only by mouth. Tube feeding is preferable to parenteral feeding in unconscious or delirious patients. When fluid and electrolytes and food must be given parenterally, the intravenous route is usually preferable to the subcutaneous. In extreme dehydration, which has led to diminution of the blood pressure and of the pulse pressure, fluids given by any other route will not enter into the circulation.

PRACTICAL APPLICATION OF RULES AND PRINCIPLES

Finally, the application of these rules and principles in a few specific types of cases in which water balance is a problem, may be considered.

I. *Acute febrile illnesses*, such as pneumonia, influenza, and typhoid fever. In these conditions there is a variable increase in the loss of fluid by other routes than the kidneys—by the lungs or skin or the gastrointestinal tract, and if the caloric intake and intake of solid food must be reduced there is a decrease in available water not taken as liquid *per se*. The indication, therefore, is for a sufficient increase in the intake of liquids as such to maintain a normal urinary output. Ordinarily in cases of pneumonia the daily intake of fluid need not

exceed 2000 or 2500 c. c. In typhoid fever the daily requirement may be slightly less if a high caloric soft diet can be given. In pneumonia electrolyte balance will be easily maintained by the salt in soups and milk, and it is certain that for the typhoid patient adequate salt will be available in the diet. Overhydration may occur during the latter weeks of typhoid fever if inadequate amounts of protein and vitamins are supplied.

II. *Diabetic acidosis*: In this condition dehydration is produced by several factors; the diuresis of uncomplicated diabetes, the loss of sodium in the urine as acid sodium salts, vomiting, sweating, and the inability to take fluids by mouth. The electrolyte stores of the body are tremendously depleted. The concentration of chloride in the blood plasma and tissue fluid is usually normal, but total body chloride is markedly reduced. Even the concentration of sodium in these fluids is markedly reduced, as is indicated by the low CO_2 combining power of the blood plasma. The special need of the body in order for water balance to be restored is for water, sodium, and chloride. Acid-base balance will also be restored by supplying water and salt if kidney function is good, because the first tendency of the body will be to restore normal concentrations of electrolytes and the early excess of chloride ions will be promptly excreted in the urine. If the acidosis is severe or of long duration, and especially if the administration of saline does not produce prompt diuresis, sodium bicarbonate or lactate rather than the chloride should be given, lest in such a case an increase in total body base may not correct the disproportion between the concentrations of acidic and basic radicles. The indication, therefore, is to give, intravenously, a large volume of saline and perhaps a smaller amount of sodium bicarbonate. I would recommend giving 1000 c. c. of normal saline over a 30 minute period, and then continuing its administration more slowly, 40 to 60 drops a minute, until the patient can take and retain fluid by mouth. There is no harm in giving glucose with the saline, and its em-

ployment obviates the danger of hypoglycemia occurring before acidosis has been corrected. If the output of urine remains small after the first 1000 c. c. of saline has been given, it is advisable to give 500 c. c. of 5 per cent sodium bicarbonate solution. Insulin, of course, should be given, and if there are signs of marked circulatory depression (thready pulse) it should be given intravenously rather than subcutaneously. It should be emphasized, however, that water, salt and sodium bicarbonate directly combat the altered physiology of diabetic acidosis, while insulin acts indirectly and more slowly, by diminishing the necessity for the oxidation of fat. It is also important to remember that in advanced diabetic acidosis true shock may exist, and that saline alone will not restore blood volume. If the pulse volume does not improve promptly after the administration of saline has been started, blood plasma or whole blood should be given.

III. *Severe mercury poisoning with anuria*: In such a case there is apt to be dehydration in spite of anuria, due to the loss of water and electrolytes in vomiting and diarrhea. Both CO_2 and chlorides will be low. The non-protein nitrogen of the blood rises steadily from day to day. The indication is to maintain water and electrolyte balance as near to normal as possible, for it has been established that persons survive anuria for much longer periods if electrolyte depletion can be prevented. Overhydration must also be avoided, for it is easy to "drown" anuric patients. During the first few days it is advisable to give glucose and saline continuously by the intravenous drip, in the amount of about 5000 c. c. daily; this will certainly overcome fluid and electrolyte depletion, but also will certainly lead to overhydration within a few days. As a matter of fact, edema may occur when the concentration of sodium in the blood plasma is still below normal. The proper procedure, therefore, is to watch carefully for the earliest signs of overhydration, and when these appear to omit saline in the infusions and to reduce their total daily amount to about 1500 c. c. When

the signs of overhydration have disappeared, saline should again be given, the amount from day to day varying with the signs of dehydration or overhydration. Careful regulation of the amount of salt and water given may enable one to tide the patient over until the secretion of urine is reestablished.

IV. *Protracted vomiting in heart failure with edema:* If it can be established that the vomiting is not due to digitalis intoxication or to organic disease of the gastrointestinal tract, one may assume that the vomiting is due to edema of the abdominal viscera. The patient, therefore, is overhydrated, and from the standpoint of water balance alone the vomiting is probably not harmful. However, the vomiting is harmful because it prevents the absorption of food and vitamins. The treatment should be directed toward improving cardiac function and toward mobilizing and removing the edema fluid. Ascitic fluid should be removed by tapping. Diuretics should be employed. One should be sure that digitalization is adequate. Such food and fluid as can be retained should be free of salt. Vitamins should be given parenterally. Calories may be supplied by giving as much as 2000 c. c. of 10 per cent glucose solution daily by very slow intravenous infusion, or a smaller volume of a more concentrated solution may be given. The administration of fluid without salt will not increase the edema.

SUMMARY

Although many factors are concerned in the balance between fluid intake and output, water balance can usually be maintained or restored by careful regulation of the amounts of water and salt which are given to sick persons. Measurement of the output of urine and the physical examination of the patient yield the most reliable signs of dehydration and overhydration, and usually indicate the need for increase or decrease in the amounts of water and salt which should be given.

PEPTIC ULCER

REPORT OF AN UNUSUAL CASE

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AND

GORDON MCHARDY, M. D.†
NEW ORLEANS

The average patient with an uncomplicated peptic ulcer presents the ordinary therapeutic problems; complications bring the internist and surgeon into debate and mortality into consideration. It is not unusual to have a refractory instance, nor is it rare to find more than one complication in a single individual. It is commonly assumed that the patient who experiences misfortunes, despite accurate therapy, is most likely one of the constitutionally predisposed persons.

When one encounters a patient so inherently susceptible to ulceration and its complications, it is to be wondered then why the average patient will respond somewhere along the therapeutic gauntlet. The case we herewith present defied all percentage for complications, survived more than statistics permit and on the whole proved the "so-called" ulcer diathesis is extremely difficult to cope with medically and surgically.

CASE REPORT

A. W. was an introspective 36 year old Jewish male who, at the age of 18 manifested clinically and roentgenologically a duodenal ulcer. He obtained symptomatic relief from temporary adherence to a modified Sippy regimen. On May 20, 1925, when 20 years old, he developed an acute (afebrile) abdomen for which an emergency cholecystectomy and appendectomy were done. The surgeon's notes included: "the gallbladder was adhered to the duodenum, pulled forward and to the right." The pathologic report revealed a normal gallbladder and appendix. Symptoms persisted postoperatively, but were relieved by a medical ulcer regimen.

On April 8, 1929, he was rehospitalized with severe ulcer pain complicated by obstructive manifestations; he was relieved by an acceptable bed rest ulcer routine. Eighteen months later (October 11, 1930) recurrent pain and obstructive symptoms brought him back to the hospital and an anterior gastroenterostomy and enteroenterostomy were

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done. (An anterior gastroenterostomy was elected because of technical difficulties.) After a two month interval (December 2, 1930) he was readmitted with an ulcer roentgenologically demonstrable on the gastric side of the stoma. Medical therapy alleviated the symptoms. Another admission, March 5, 1931, recorded the successful medical management of melena.

Acute abdominal pain indicated hospitalization on April 29, 1931, and an exploratory laparotomy revealed a perforated gastric (marginal) ulcer which was excised and the area plicated. Recurrent ulcer pain in 1933 and in 1934 were controlled by a well-conducted ulcer regimen; duodenal feedings (by tube) were used for two weeks on one occasion.

The patient was not hospitalized again until September 8, 1935, when he returned with an acute gastric perforation developing subsequent to severe obstructive manifestations. A subtotal gastrectomy was successfully performed.

On December 5, 1935, he was readmitted after a severe hemorrhage which was controlled medically.

Two months later (February 18, 1936), a so-called "subacute perforation" was managed medically, but three days later he had an acute perforation of a marginal ulceration. An extensive gastritis and jejunitis were apparent at exploratory with an inflammatory mass on the gastric side of the anastomosis palpably and macroscopically suggestive of malignancy to the surgeon and surgical pathologist. A subtotal gastrectomy and resection of the involved area of the jejunum was successful. (Microscopic pathology proved the lesion benign.)

On June 8, 1936, after an asymptomatic period, the patient had a severe acute hematemesis and was admitted to the hospital in shock with a red blood cell count of 2,250,000. He responded to a conservative regimen.

One month later, having had persistent severe pain, an alcohol injection of the twelfth thoracic and first lumbar sympathetic ganglion, including the splanchnics, was resorted to with relief.

He remained under close observation for the next twelve months with postprandial discomfort persistent and gastric analysis repeatedly approximating a free hydrochloric acid of 70 units. In 1939 and 1940 he was entirely asymptomatic and when called in for a follow-up examination in October 1941, he was and had been in excellent health, was not adhering to any regimen, smoked to excess and was drinking freely. He had gained 45 pounds during the four year period. Physical examination revealed an apparently healthy 36 year old male. Gastric analysis showed an achlorhydria with total acids of 9 units. Roentgen study revealed a coarse mucosal pattern, a well functioning anastomosis with some sphincter action; there was no demonstrable lesion.

SUMMARY

There are numerous unusual factors in this case report.

1. The patient may be classified as a "juvenile" at the onset of his illness, being only 18 years old when a duodenal ulcer was proved roentgenologically.

2. All of the complications other than malignant change occurred in his instance: (a) perforations: gastric, jejunal and anastomotic; (b) hemorrhage: on four occasions; (c) multiple ulceration: duodenal, gastric, anastomotic marginal (gastric) anastomotic or marginal (jejunal); (d) obstruction: duodenal, anastomotic; (e) intractable pain.

3. Extensive gastric surgery was survived: (a) anterior gastroenterostomy; (b) partial gastrectomy; (c) excision of ulceration and plication; (d) subtotal gastrectomy.

4. Symptoms persisted until an achlorhydria occurred.

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ACUTE PERFORATION OF PEPTIC ULCER

REPORT OF 29 CASES

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LAFAYETTE

The present communication is an analytic report of the experience with the various factors dealing with the subject of acute perforated peptic ulcers as it obtains at the Lafayette Charity Hospital. It is based upon a study of 29 cases collected from June, 1938, through June, 1941. Every case but one was submitted to a surgical procedure and the diagnosis confirmed. Operations were performed by six different members of the staff.

The general management of the patient was the same in all instances with but slight modification in the more seriously sick. As soon as admitted, the patient was seen by the admitting officer who determined the advisability of having x-rays taken before being moved to the ward. Transfusion or

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intravenous infusion was given while preparations for operation were made. Neoprontosil was administered parenterally in most patients. In those individuals who were exceedingly ill or the danger great, x-rays were not taken, but they were immediately transported to the operating room where all medication and preparation was carried out. None of the patients seen, in whom perforation had occurred within 12 hours, appeared in shock as determined from the pulse, temperature, respirations or blood pressure readings. The abdomen, however, still retained its almost board-like rigidity.

Of the total number of cases, 29, only one occurred in a white female. This patient was admitted in coma. A period of 67 hours had elapsed from the onset of her illness until her admission. In this case the diagnosis was made by the x-ray findings of air under the diaphragm. She was not operated upon. This was the only female in the series. Of the males, there were 18 white and 10 colored. This is in approximate proportion to the number of white and colored admissions, that is 60 per cent white and 40 per cent colored; 62.0 per cent white perforated and 38 per cent colored perforated. Of the patients who died following operation, eight were white and four colored, which is in proportion to the admissions and incidence of disease.

The gross mortality of the entire group was 37.9 per cent; 18 patients recovered and 11 died. This includes a white woman who was admitted 67 hours after the onset and when admitted was in coma, showing a 4 plus glycosuria and who was not operated upon. Of the others, two were in extremis when admitted but were nevertheless submitted to operation. The exclusion of these three cases would have reduced the mortality rate of 27.5 per cent, demonstrating again how fickle statistics may be.

The interval of time that elapses from the moment of perforation until the patient reaches the operating table has long been known to be the most important factor affecting survival. An average of this time interval in the patients who survived in this

series was 10 hours. In the cases that ended fatally, the average time interval was 28½ hours.

Drainage has always been a problem. In this series, no drains were placed in seven patients, or 28 per cent. Of this group, five lived and two died. The time interval in the group that survived and not drained varied from one to 13 hours after the onset of symptoms. Of the two who died, the time factor was 10 and 48 hours respectively. The question of drainage was not a preference by any one surgeon but was evenly distributed and therefore represented the impression of the gravity of the individual case by each surgeon. In a review of the literature it would seem as if the more serious the case the more drains were placed. However, it does seem that better results are obtained in not draining when the general condition of the patient is good and the risk slight. This rule was not applied in this series. Drainage was influenced chiefly by the amount of fluid present in the peritoneal cavity. Of those who survived, drainage was performed in 61.5 per cent and in those who died, in 80 per cent.

The age incidence of perforated peptic ulcers is similar to that of the uncomplicated ulcers. The greatest decade incidence in this series for both white and negro was from 21 to 30.

AGE AND COLOR	INCIDENCE	PER CENT	WHITE	COLORED
0-10	0	----	0	0
11-20	1	4	0	1
21-30	10	34	7	3
31-40	7	25	3	4
41-50	8	28	6	2
51-60	1	4	1	1
61-	1	4	1	0

The incidence as to seasons is very interesting. Only one case occurred in the summer quarter. The spring quarter contained the highest number of cases with May as the greatest month. This observation is not new and has provoked many unusual explanations. The most persistent theory is the one stating that the occurrence of more vitamin containing foods at this season served as a protection. Inasmuch as 50 per cent of these patients were farmers to

whom the same vitamin foods should have been available for a longer period than the summer quarter, it would appear as if some other factor was present in this series.

It has occurred to me that at this time of the year, one is apt to eat less food and that food is more likely to be concentrated and more easily digestible. Furthermore, the residents in this area are accustomed to very rich and highly seasoned foods and these seem to be avoided in the summer months.

SEASONAL INCIDENCE

January	4	July	0
February	1	August	1
March	2	September	0
	7		1
April	4	October	3
May	8	November	2
June	2	December	2
	14		7

In the majority of these cases, in spite of careful questioning, no history of previous gastric complaint could be elicited. Nevertheless when the abdomen was opened, the pathologic condition about the ulcer suggested the presence of an ulcer for some time. It is possible that the pain sensitivity level of this group of patients was such that the usual symptoms of peptic ulcer were either ignored or tolerated without much concern. One point is definite, the sudden pain of rupture is severe enough to all to demand immediate attention. The site of perforation in these individuals was either on the anterior surface of the stomach or of the duodenum.

SUMMARY

While the series of cases reported is not great, it does bring out certain pertinent factors which operate in this section of the state:

1. The presence of 29 cases of perforated peptic ulcers within a period of three years in a general charity hospital of 220 beds is a large number.

2. The ratio between the races indicates that there is no species susceptibility.

3. The gross mortality of 37.9 per cent is very high and in this series points to a de-

lay on the part of the family or the physician in presenting the patient for operation, or diagnosis.

4. As in other reports, the more seriously ill were more apt to be drained than those in better condition. In this report, it mattered not as the results were not affected by anything but the time it took to get the patient to the operating table.

5. The greatest age incidence was the decade between 21-30.

6. The highest number of perforations were admitted in May and the lowest seasonal period was the summer months. As suggested, this is the period when the least amount of food is consumed and condiments added are at the lowest point.

7. Ulcers on the anterior wall of the stomach or duodenum perforate suddenly and the only treatment is surgical.

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LEFT-SIDED APPENDICITIS

A REPORT OF THREE CASES

JAMES T. NIX, M. D.

AND

JAMES T. NIX, JR., M. D.
NEW ORLEANS

The three cases of left-sided appendicitis reported in this paper were found in a series of 4215 appendectomies performed in a twenty year period, 1921-1940, by James Thomas Nix, M. D. During this period, four patients with situs inversus and complete rotation of the colon were seen in the course of treatment for conditions unrelated to the appendix. One of these patients had previously been operated on for left-sided appendicitis.

The study of cases and review of the literature is made by James Thomas Nix, Jr., M. D.

Embryology of the Appendix: In the third month of intra-uterine life, the cecum and appendix rotate from the left to the right iliac fossa.

Classification of Left-sided Appendices: According to Hembrow,³ left-sided appendices fall into four categories: (1) complete or incomplete visceral transposition; (2) non-rotation of colon; (3) imperfect fixation of the cecum and ascending colon;

(4) excessively long appendix with the tip to the left of the mid-sagittal line.

Classification of Left-sided Appendicitis: A left-sided cecum and appendix may give clinical signs in the right or left lower quadrant. Hembrow believes that appendicitis in cases of: (a) non-rotation of the colon; (b) imperfect fixation of the cecum, and (c) excessively long appendix with the tip to the left of the mid-sagittal line should show clinical localization in the right lower quadrant of the abdomen. In complete visceral transposition, the clinical signs should be on the left according to Hembrow,³ on the right according to Block,¹ on either side according to Pol.⁵ If repeated attacks of appendicitis result in adherence of the appendix to the left side of the abdominal wall, the clinical signs should be on the left.

Incidence of Left-sided Appendices: Le Wald⁴ found one case of complete transposition of the viscera in 5000 necropsies; 29 cases of complete transposition of the viscera in 40,000 roentgen ray examinations (1:1400); and nine cases of non-rotation of the colon in 40,000 roentgen ray examinations or one case in 4400.

Incidence of Left-sided Appendicitis: Left-sided appendicitis, according to Walther, occurs once in every one thousand cases. Block¹ states: "Pol in 1935 found 46 cases reported of left-sided appendicitis when a situs inversus viscerum was present; totally in 34, partially in 12."

Diagnosis: In the 45 cases reviewed by Pol,⁵ correct preoperative diagnosis was made only in seven. Left-sided appendicitis must be differentially diagnosed from: (1) right-sided appendicitis; (2) diverticulitis, (3) salpingitis, and (4) ectopic gestation.

CASE NO. 1

INCOMPLETE VISCERAL TRANSPOSITION

Miss J. K., a white female, 25 years of age, was admitted to Hotel Dieu, May 3, 1921. Patient complained of diffuse abdominal pain, nausea, and vomiting. Physical examination on admission showed the abdomen to be diffusely rigid with tenderness on light palpation; examination of the chest showed PMI in left fifth interspace; no dextrocardia; no abnormalities.

The diagnosis of ruptured appendix with diffuse peritonitis was made and an emergency appendectomy was performed under ether anesthesia. A low gridiron incision was made in the right lower quadrant of the abdomen. Free purulent fluid was found in the peritoneal cavity. No large bowel was found in the right hemiabdomen. A corresponding gridiron incision was made in the left lower quadrant of the abdomen. The cecum appeared in the incision. The appendix, gangrenous and perforated at the tip, was removed.

After an uneventful postoperative course, the patient was discharged from the hospital cured, May 26, 1921.

(Records on this patient are meagre, hospital charts for this period having been destroyed by flood.)

CASE NO. 2

IMPERFECT FIXATION OF THE CECUM AND ASCENDING COLON

Mr. P. B., a white male, 23 years of age, was admitted into Hotel Dieu, September 22, 1929, complaining of diffuse peri-umbilical pain with nausea and vomiting. The patient gave a history of intermittent aching pains in the epigastrium, unrelated to the consumption of food, for about five months' duration. On the night before admission, the patient had eaten a plate of raw oysters. Physical examination showed PMI in left fifth interspace, no dextrocardia, no abnormalities of the chest; the abdomen presented no rigidity or distention, but a slight tenderness in left lower quadrant of abdomen. A tentative diagnosis of acute gastroenteritis was made.

The three blood counts made on the day of admission showed (1) total white cell count of 12,250, small lymphocytes 12, large lymphocytes 0, neutrophils 88; (2) total white cell count 14,500, small lymphocytes 8, large lymphocytes 3, neutrophils 89; (3) total white cell count 19,750, small lymphocytes 7, large lymphocytes 3, neutrophils 90. The blood count on the second day of hospital stay was: total white cells 8,000, small lymphocytes 21, neutrophils 79. Repeated urinalyses were negative. Patient was discharged on the second day of his hospital stay.

On October 7, 1929, patient was readmitted for an interval appendectomy. The physical examination on this admission showed no distention, no rigidity and no tenderness of the abdomen. Repeated urinalyses were negative. An operation lasting one and a half hours was performed under ethylene anesthesia. A low gridiron incision was made in the right side. Upon opening the peritoneum, no evidence of the large bowel could be seen. A gridiron incision in the left lower quadrant revealed the sigmoid to be normally located. The cecum was mobile, situated to the left of the midline. The appendix was removed. The patient recovered with a smooth postoperative course and was discharged from the hospital October 21, 1929.

The pathologic report was as follows: The appendix, 5½ cm. in length, was of normal diameter. The outer surface was injected and presented numerous fibrous tags. Diagnosis: subacute appendicitis.

CASE NO. 3

INCOMPLETE VISCERAL TRANSPOSITION

Miss B. B., a white female, 12 years of age, was admitted into Hotel Dieu, June 20, 1939; patient complained of diffuse aching pain in the epigastric region, nausea, and vomiting. Physical examination showed PMI in left fifth interspace, no dextrocardia, no abnormalities of chest; no distention or rigidity of the abdomen; tenderness to light palpation in the epigastrium.

The blood morphology made on the day of admission showed: total white cell count 9,500, neutrophils 70, lymphocytes 30. The blood count made later on same day showed: total white cell count 11,000; lymphocytes 25; neutrophils 73; metamyelocytes 1; staff 1; segmented 71; eosinophils 1; basophils 1; red cell count 3,600,000; hemoglobin 55 per cent; color index 0.8. The blood count made on the second day of the hospital stay showed: total white cell count 7,500; lymphocytes 21; neutrophils 79; staff 2; segmented 77; eosinophils 1; red blood count 4,450,000; hemoglobin 70 per cent, color index 0.8.

Urinalysis made on the day of admission showed acetone 2 plus and occasional pus cells.

The patient was operated on 48 hours after admission under cyclopropane anesthesia, the operation lasting one hour. Through a low right gridiron incision the abdomen was opened. The sigmoid was present on the right side. A counter incision was made on the left. The cecum was located on the left side with the appendix pointing toward the midline. The appendix was removed. The patient recovered with a smooth postoperative course and was discharged from the hospital on July 3, 1939.

The pathologic report was: The appendix, 10 cm. in length and ½ cm. in diameter, presented thickened walls, covered with fibrous tags. The diagnosis was chronic appendicitis.

INTERPRETATION

The incidence of left-sided appendicitis in this series was: 2:4215 or .07117+ per cent or approximately .071 per cent.

Bilateral abdominal incision was made in each of the three cases. In two cases, localization of pain was in the epigastrium, in one case with diffuse peritonitis, abdominal pain and tenderness were generalized.

Today localization of the cecum can be determined preoperatively by a flat plate of the abdomen.

SUMMARY

1. The classification of left-sided appendices is: (a) complete or incomplete visceral transposition; (b) non-rotation of colon; (c) imperfect fixation of the cecum and ascending colon; (4) excessively long appendix with the tip to the left of the mid-sagittal line.

2. The incidence of left-sided appendicitis is approximately .071 per cent.

3. Three cases of left-sided appendicitis with appendectomy are reported.

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TUBERCULOSIS OF THE MAJOR BRONCHI

A REVIEW

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INTRODUCTION

The pathologic tuberculous lesions of the major bronchi were described by Eppinger sixty years ago, but little pathologic and practically no clinical attention were paid to them in the ensuing years. After the World War, isolated case reports began appearing in the current literature and the 1920-1930 period saw several cases which were described and diagnosed clinically. Until 1930, however, relatively little was known about the disease. In 1931 Clerf pointed out the value of bronchoscopy in lesions of this nature and this was re-emphasized by Sampson in 1936.

With the advent of bronchoscopy into this field, knowledge concerning the nature of the process began to grow. The wealth of material now available has grown mostly in the last five years. Now that our knowledge has reached a relatively ad-

vanced state, it seems advisable to pause and take stock.

DEFINITION

Tuberculosis of the major bronchi, or tuberculous tracheobronchitis, is a complication of pulmonary tuberculosis. The term signifies a specific inflammation of the trachea and major bronchi which involves one or more layers of the wall and includes all types of lesions caused by the tubercle bacillus. It is distinguished from the term tracheobronchial tuberculosis which signifies tuberculous involvement of the tracheobronchial lymph nodes. By the term major bronchus is meant an air passage containing mucosa, submucosa, muscle, encircling cartilage, elastica, and a definite adventitia.

INCIDENCE

The reported incidences of tuberculous tracheobronchitis vary greatly. Flance⁸ found it in only 3.1 per cent of patients dying from pulmonary tuberculosis, whereas Bugher, Littig and Culp³ found an incidence of 41 per cent in a similar series. Other reports are more in agreement. Ophuls found a 10 per cent incidence in 3,000 autopsies. Sampson¹⁹ found a 11 per cent incidence in routine bronchoscopy of tuberculous patients and McIndoe, Steele, Sampson, Anderson and Leslie¹³ found the same per cent in 272 patients bronchoscope. Somewhat higher figures have been found by Myerson¹⁵ and Hawkins.¹⁰ The concensus now is that 10 to 15 per cent of patients with pulmonary tuberculosis have tuberculous tracheobronchitis. It is more frequently found in cases of pulmonary tuberculosis of long standing and in far advanced cases. The complication affects females more than males (probably because the female is more reluctant to bring up the bronchial secretions) and is found in the younger age groups, corresponding with pulmonary tuberculosis.

PATHOGENESIS

Spread to the major bronchi may take place by contiguity, implantation, continuity, or by the blood stream.

The mucous glands of the bronchi are between the cartilage and lumen and separated from the adventitia by muscle. However, accessory lobules penetrate the firm muscle barrier and lie in the adventitia where they are in close proximity to lymph and venous channels draining the adjacent lung parenchyma. Infectious material from tuberculous pneumonia of the peribronchial alveoli, tuberculous lymphangitis and phlebitis, and diseased lymph nodes, therefore, may invade these lobules and spread through the muscle barrier to the mucosa. This is known as spread by contiguity, as advanced by Reichle and Frost.²³ This concept is disputed by Bugher, Littig, and Culp³ and Cohen and Wessler.⁵

Spread by implantation results from massive eruption of caseous material into the secondary bronchi of the lower lobe. This leads to a spreading infection which soon invades the major bronchi. Bugher, Littig and Culp, and Cohen and Wessler believe that infection usually results from contact with bacteria-laden sputum, the bacilli gaining entrance through the gland ducts or abraded areas.

Parenchymatous disease involves the smaller bronchi. From here tuberculous granulation tissue and caseation may creep by continuity along the submucosa to the major bronchi. All the bronchial structures are destroyed except the mucosa which is left intact.

Hematogenous spread to the bronchi is very rare. Terminal, or agonal, spread just before death may at times occur.

Ornstein and Epstein,¹⁶ while admitting the above, state that tuberculous tracheobronchitis may be a primary lesion without lung involvement or with secondary lung involvement. This is not the generally held opinion.

PATHOLOGY

The fundamental pathology is the same as tuberculous lesions elsewhere in the body. Epithelioid and giant cells, caseous necrosis, granulomatous proliferation, and fibrous tissue are always present. The process, grossly, may be ulcerative, granu-

lomatous, caseous, fibrous, or a combination of these.

Ulcers begin, usually, as a tubercle beneath the mucosa, though they may be the result of direct invasion from the lumen. The infiltration causes interference with blood supply. Caseation of the tubercle then occurs and the mass of necrotic tissue is sloughed out, leaving an ulcer. The surface of the ulcer is irregular, thickened, and may be undermined. A white, homogenous film usually covers the surface; when this is removed a base of granulomatous tissue is found. If the ulcer does not heal, the granulation tissue proliferates to form a tuberculoma which may extend along the bronchi or heal by fibrosis. The granulation tissue looks like any other grossly, but the presence of epithelioid and giant cells may be demonstrated microscopically. If extension does occur, it is always toward the larynx.

Ultero-granulomatous lesions are representative of the active stage of the disease. They are found most frequently in both bronchial branches and the main bronchus. In the trachea and main bronchi, the lesions are usually on the posterior wall, probably because of the supine position of the tuberculous patient.

Caseous tuberculosis involves all coats. The mucosa and submucosa undergo caseous degeneration and the inflammatory exudate separates the perichondrium from the cartilages. Necrosis of the cartilages results in collapse of the bronchus to an antero-posterior slit with consequent complete or partial obliteration of the lumen. When this last stage is reached the lesion is known as bronchitis obliterans.

Fibrous tuberculosis is the end stage of all forms. Healing is always with excessive scar tissue, the amount varying with the extent of the lesion. The bronchus, by this process, is transformed to a rigid, narrowed tube. Stenosis of varying proportions is the inevitable result and the lesion is then known as ulcerostenotic. Severe stenosis is especially seen following caseous tuberculosis. The collapse of the bronchus seen in this form, with further scar constriction,

results in a high grade stenosis. Distal to the stenosis there is an accumulation of infected secretions with subsequent bronchiectasis. Complete stenosis leads to atelectasis. Ball valve stenosis may result either in atelectasis or emphysema.

Lesions are classified, by Eloesser,⁶ according to their location, as intramural, mural, and extramural. The intramural lesion is rare; it is the result of a suppurating lymph node breaking through the mucosa and discharging its contents into the lumen. Mural lesions, the most frequent, consist of ulcers, granulomata, infiltrations, and fibrosis. Extramural lesions are the result of pressure by enlarged lymph nodes and peribronchial sclerosis (usually non-tuberculous).

Laryngeal tuberculosis, though frequently found with tuberculous tracheobronchitis, bears no causal relationship to it.

SYMPTOMS

The characteristic symptoms are those which result from a decrease in caliber of the trachea and bronchi; the lesions act the same as foreign bodies. The earliest and most constant symptom is a constant wheezing, snoring, or gurgling noise made with each inspiration and is very noticeable by the patient. A sense of oppression under the sternum is felt by some. Dyspnea is present to a varying degree and may be quite severe. It often takes the form of asthmatic attacks; however, the vital capacity is not lowered. Differentiation from asthma is made by the fact that the difficulty is during inspiration, whereas in asthma it is expiratory, and the unchanged vital capacity in tuberculous tracheobronchitis. Cyanosis usually accompanies the dyspneic attacks; it may be transient or permanent.

Paroxysms of coughing, especially when the posture is changed, is a characteristic symptom. Hemoptysis, seldom alarming, may result. Coughing raises an exceptionally thick, tenacious, rubbery sputum which is hard to expectorate. When, after a bout of coughing, a mucous plug is raised, the patient is immediately relieved.

SIGNS

The oral wheeze, so distressing to the patient, may be heard several feet away. Palpable, localized rhonchi, which are not affected by coughing or change of posture, are a frequent accompaniment. Fever, which may be absent, is usually of a low grade type. Sudden elevation to 101-102° usually indicates a plugged bronchus. McIndoe, Steele, and Sampson¹³ found some or all of the above symptoms and signs in one-third of their tuberculous patients. Of these, one-third had definite tracheobronchial involvement.

LABORATORY

The sputum is nearly always positive, even though the lung lesions are minimal. X-ray may be of definite value. Atelectasis, either lobar or lobular, is found whenever a bronchus is completely occluded. A ball-valve occlusion may result in emphysema or, if a cavity is present, a "tennis ball" cavity in which air is under positive pressure. Spontaneous, intermittent atelectasis is particularly suggestive; it is the result of edematous or caseous plugging of a bronchus and subsequent re-establishment of the lumen. If the patient is under collapse therapy a sudden decrease in the size of the lung (atelectasis) may appear. The x-ray plate does not show as much parenchymal involvement as one would expect from the clinical picture. Occasionally the bronchial changes are visible. Oechsli's sign is particularly important. This is a thickening along the bronchovascular trunk leading from the parenchymal lesion to the root of the lung with accentuated visibility of the bronchial lumen; it is probably due to submucosal infiltration.

DIAGNOSIS

The diagnosis is suspected in any patient with tuberculosis exhibiting any of the symptoms and signs suggestive of tuberculous tracheobronchitis. A persistently positive, more profuse sputum containing many plugs and casts, with minimal pulmonary involvement is very suggestive. A partially obstructed cavity with a fluid level may exhibit a rapid enlargement which cannot be

explained on a basis of tissue destruction; this is indicative of a ball-valve bronchial obstruction. Pulmonary tuberculosis very rarely produces atelectasis or emphysema; these findings, therefore, should lead to a suspicion of tuberculous tracheobronchitis. Serial plates are necessary to show the changes and to pick up a transient atelectasis. Although a bronchogram with lipiodol will reveal a stenosed bronchus, it is felt that it is a dangerous procedure because of the iodine content of the lipiodol.

Positive diagnosis is made by bronchoscopy, which should be done in all patients exhibiting any of the findings pointing to a suspicion of tuberculous tracheobronchitis.

DIFFERENTIAL DIAGNOSIS

Tuberculous tracheobronchitis must be differentiated from non-specific ulcers, erosion from lymph nodes, syphilis, neoplasms, and rhinoscleroma. Differentiation is best made by bronchoscopy.

The tuberculous lesion, bronchoscopically, is a chronic thickening and congestion of the mucosa. Jackson describes a peculiar cyanotic tint of the surface. Petechial hemorrhages may be present. Ulceration is common.

Erosion of a lymph node through a bronchus is diagnosed by the sudden, severe, bout of coughing followed by expectoration of the node. Bronchoscopy reveals a perforated ulcer of the bronchus.

Syphilitic involvement is usually a third stage gumma. Obstruction is not the rule, nor is dyspnea usually seen. Bronchoscopically, a constructive process is seen, although ulceration may be present. Bleeding is not the rule. Biopsy proves the diagnosis.

Bronchiogenic carcinoma is seen after middle age. Hemoptysis is much more frequent. The lesion is fungating and obstructive and bleeds easily. A malignant ulcer, if present, has rolled, indurated edges. Such lesions should always be biopsied.

Rhinoscleroma is also seen after forty. The nodules characteristic of this disease coalesce to form an infiltrative mass of a chronic inflammatory character. The lesion

is hard, dark brown, or red shade, and does not ulcerate. Biopsy should be done.

COMPLICATIONS

Complications are atelectasis, bronchiectasis, stenosis, and infection of uninvolved parenchyma. Atelectasis is a frequent finding and may be regarded as part of the symptom complex. It is, however, an undesirable feature because infected secretions accumulate behind the stenosis where they may involve healthy tissues and produce an exacerbation of symptoms. Factors conducive to the production of atelectasis are bed rest, shallow breathing, shortening and kinking of the bronchi by scar tissue, bronchoscopic examination, and phrenicectomy.

Bronchiectasis is the result of the damming back of secretions behind a stenosis with resultant abscess cavities, inflammation, congestion, and swelling. It is a frequent finding; Cohen and Higgins⁴ found bronchiectasis in 17 out of 19 patients with tuberculous tracheobronchitis. It usually comes on several months after bronchial involvement. Unsuspected fever associated with a sudden rise of temperature is indicative of retention of secretion. Diagnosis is by bronchoscopy.

Stenosis of varying degree is an inevitable complication. When this is severe, portions of a lung, or even a whole lung becomes functionless. High grade stenosis of the trachea causes death by suffocation.

It should be emphasized that tuberculous tracheobronchitis is often responsible for involvement of the contralateral, uninvolved lung. Sudden, unexpected appearance of lesions on the opposite side should lead to a suspicion of extension from a bronchial lesion.

PROGNOSIS

The prognosis of tuberculous tracheobronchitis is very poor. Sampson, Barnwell, Littig and Bugher²⁰ report a 52.9 per cent mortality. Other series,²¹ show practically the same percentage deaths. No patient ever fully recovers, although he may live for several years. Since tuberculous tracheobronchitis is seen mostly in cases of

far advanced tuberculosis, it is not surprising that the mortality is high. Death usually results from suffocation or the parenchymal process.

Warren, Wadsworth, Hammond and Tuttle²⁴ are not as pessimistic. They state that in 54 patients treated (by Kernan electrodes) 34 (59 per cent) were healed, 10 progressed or did not improve, and nine are still under treatment. These cases, however, were not advanced. Simple ulcers certainly carry a better prognosis.

TREATMENT

Treatment is very unsatisfactory and there is no unanimity of opinion concerning procedure. Palliative treatment consists of cough mixtures, croup tents, bed rest, and antispasmodics. None are of much value except bed rest. Aspiration of pus and secretions through the bronchoscope affords relief. Sampson²² advocates the application of epinephrine and cocaine to the edematous areas. These measures afford temporary relief only. Elimination of allergens and administration of tuberculin, as advocated by some, is useless and may be dangerous.

Deep x-ray therapy was advocated by Epstein and Ornstein⁷ in 1936 but trial proved its worthlessness and it is not used at present. Ultraviolet radiation is now placed in the same category.

Epstein and Ornstein,⁷ and Myerson¹⁵ believe the simple ulcer should be left alone and allowed to heal spontaneously; only the indolent ulcers should be treated. Kernan,¹² however, advises treatment of simple ulcers because he believes they will then heal with less scar.

Concerning collapse therapy there is a diversity of opinion. Barnwell, Littig and Culp, and Epstein and Ornstein believe that it is indicated by atelectasis, stenosis, and the pulmonary lesion. Ornstein and Epstein¹⁶ state that pneumothorax is desirable because it reduces air flow and puts the bronchus at rest, prevents spread, diminishes pulmonary vascularity, and relieves wheezing. They state that three out of eight patients had symptomatic relief

following pneumothorax. Sampson²¹ states that the results of collapse are the same as no treatment at all and therefore advocates it only in so far as the pulmonary lesion is concerned. However, Jenks¹¹ states that collapse is contraindicated and should not be done until after the lesions have healed.

Cauterization with the electric cautery is advocated for tuberculomatous lesions by many.^{7,15,19} Kernan,¹² however, points out that, although healing is rapid, there is much resultant scar tissue with danger of stenosis, and reports a case of fatal hemorrhage following erosion of a large vessel by the cautery. Silver nitrate is also used. Goldberg⁹ cautions that it should not be used in a strength over 5 per cent because of the greater formation of scar tissue. Kernan suggests the use of the mercury vapor lamp in cauterization, stating that less scar is produced and the method is safe. It should be applied two to three minutes every two weeks. When scar has formed, he recommends copper ionization which softens the scar and permits dilatation. A current of three milliamperes is allowed to act two or three minutes once a week.

Dilatation of stenosed bronchi should be carried out with great caution, if at all. Benedict² believes it should always be tried, and points to success in three cases. Sampson agrees with him. On the other hand the dangers of ulceration and perforation are great. Myerson¹⁵ believes that dilatation is impossible because of the extent and firmness of tuberculous stenosis, and therefore should never be attempted. Dilatation and shrinkage with aspiration of retained secretions is of great temporary value.

Kernan,¹² and Cohen and Wessler⁵ believe that complete stricture of a bronchus might be desirable if the distal tissues are uninfected; it is the small openings in the strictures present which permit infection of the distal parenchyma without permitting useful function. To date no one has attempted this suggested form of therapy.

Sampson¹⁹ has suggested lobectomy, pneumonectomy, or external drainage in se-

lected cases. To date these measures have not been tried, to my knowledge.

SUMMARY OF THE ROLE OF BRONCHOSCOPY

The bronchoscope is responsible, more than any other thing, for the growth of knowledge of tuberculous tracheobronchitis. Prior to 1935 it was generally thought that bronchoscopy was contraindicated in tuberculous patients. Sampson,²² in 1936, showed that there is relatively little danger and that bronchoscopy is indicated when tuberculous tracheobronchitis is suspected. By use of the bronchoscope the condition may be accurately diagnosed and treated. Although there is little of permanent positive value the bronchoscopist can do, less can be accomplished by other means.

Bronchoscopy is indicated in any tuberculous patient in whom tuberculous tracheobronchitis is suspected. It is contraindicated in acute laryngeal disease, when there has been a recent severe hemoptysis, and when the patient is acutely ill. Jenks¹¹ points out that the cough reflex is abolished in bronchoscopy and infectious material is loosened from the walls by the instrument, with the consequent danger of aspirating the material and spreading the disease. Although this is theoretically so, the danger of spread by this means is not great. Warren, Wadsworth, Hammond, and Tuttle²⁴ believed that bronchoscopy was responsible for spread in two of 57 cases studied.

Bronchoscopy is also of value before thoracoplasty and other major collapse procedures, and it is the consensus that it should be done routinely in these cases. Frequently the bronchoscopist will find tuberculous lesions of the bronchi on the side opposite that of contemplated surgery. Obviously, permanent collapse of one lung with the other threatened with a stenosing bronchitis is definitely contraindicated.

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SOME RECENT ADVANCES IN GASTROINTESTINAL PHYSIOLOGY

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NEW ORLEANS

INTRODUCTION

Although speculation as to the mechanics of the gastrointestinal tract has gone on for centuries, significant advances date back to 1825. At this time, William Beaumont began his classic experiments on gastric juice and digestion. Alexis St. Martin, a Canadian of French descent, was wounded by the discharge of a musket, and went to Beaumont for treatment. After a rather hectic and protracted period, St. Martin's health returned, but he was left with a permanent gastrostomy. Beaumont, realizing the experimental possibilities, worked laboriously for many years, and in 1833 reported the results of his painstaking research in a book entitled "Experiments and Observations on the Gastric Juice, and the Physiology of Digestion." This work marks the beginning of accurate knowledge of gastrointestinal physiology, for, in it, Beaumont disproved many of the absurdities that were regarded as scientific facts at the time.

If one reads a text or work written in the first part of the nineteenth century, he will be amazed at the remarkable advances that have been made in the last 100 years. For instance: Spallanzani, in 1793, after numerous experiments, declared the gastric juice to be entirely neutral and inert. It was commonly believed that hunger was due to friction of the inner walls of the empty stomach, to the mechanical action of the diaphragm, or to dilatation of the gastric vessels. Montegre contended that the gastric juice was nothing but saliva, that its principal use was to dilute the food, and that the stomach possessed a peculiar sensibility in that it had absorbent vessels which could take up certain parts of the food and reject others. Jackson believed that digestion was performed by submitting food to the action of different fluids, each of which had "solvent powers for different principles."

Obviously, noteworthy advances have been made in the last century. Too, much has been done in the last few years to clarify the intricate problem of gastrointestinal physiology. Most marked advances have been made in the fields of motility, secretion, and absorption. To say the least, all

questions are not settled, but significant advances are being made every day.

GENERAL

Crandall et al. claim that the P-P factor (nicotinic acid) is essential for the maintenance of normal gastrointestinal motility. Vitamin B deficient animals display a craving for fat and an aversion to carbohydrate and protein food; this aversion may be the result of disturbed gastrointestinal physiology or it may be due to a disturbance in the metabolism of these two foodstuffs.

Recently, by means of a special resistance thermometer, the temperature of the normal gastrointestinal tract was determined. For males, it varies between a maximum of 101.8°F. and a minimum of 97.8°F., with an average of 99.2°F.; for females, it varies between 97.5°F. and 102.2°F., with an average of 99.4°F. It was found that drinking 250 c. c. of water at 40°F. caused a drop in the gastrointestinal temperature of 30-60°F. with advance of the motor end point; the average emptying of the stomach was delayed 30 to 45 minutes and occasionally longer. Hot coffee causes an increase in temperature of 4-17°F. with a recovery time of 45 minutes; however, there is no appreciable change in gastric emptying time. Application of ice bags to the abdomen for an hour causes a decrease of only 1°F. in intragastric and intraduodenal temperature. Thus, if application of an ice bag is of any benefit in cases of gastric and duodenal hemorrhage, it is not due to lowering of the gastrointestinal temperature.

PEPTIC ULCER

More evidence that hyperacidity is unimportant in the etiology of peptic ulcer has been advanced recently. Dogs were sham fed 10 to 12 hours a day without obtaining the least evidence of chronic ulcers; too, there is no correlation between acidity and degree of distress or acidity and recurrences.

Martin and Schnedorf have made an extensive investigation of the claims that lesions of the hypothalamus produce peptic ulcers. By placing localized lesions in the hypothalamus of seven monkeys and 40

cats, they were unable to effect a change in gastric secretion or motility, nor did autopsy show pathologic lesions in the gastrointestinal tract.

Mann and Bollman report that the oral, rectal, and parenteral administration of cinchophen caused the uniform development of peptic ulcers in animals. Pectin has a prophylactic and curative action for these ulcers, for when it was given with cinchophen, the incidence of ulcer formation was reduced to 11 per cent.

Noting that peptic ulcers occur only infrequently in pregnancy (and, if present, show a tendency to remission), Sandweiss et al. studied the effect of sex hormones on the incidence of ulcers in dogs with a Mann-Williamson operation. They found that pregnancy-urine extract (antuitrin-S) definitely decreased the incidence of ulcers in such animals. There is as yet no feasible explanation for the action of this extract.

Although no evidence of beneficial effect of ascorbic acid was noted when administered to ulcer patients, Chamberlin and Perkin found the blood and urine of ulcer patients to contain less ascorbic acid than normal.

Recently, two additional theories of the etiology of peptic ulcer have been advanced. Both contend that a vasoconstrictor acts on the stomach, devitalizing the tissues and rendering them susceptible to the digestive action of hydrochloric acid and enzymes. Necheles believes the etiologic factor to be acetylcholine; Babkin believes it to be histamine. Other investigators have shown that 37 per cent of dogs receiving repeated injections of pitressin develop ulcers; apparently they result from vascular interference with local nutrition in the gastric mucosa.

INTESTINAL OBSTRUCTION

Evidence has been presented by Montgomery which shows that obstruction of the intestine does not increase secretion, thereby producing a vicious cycle. Wangenstein et al. have strikingly demonstrated the injurious effects of distention in intestinal obstruction. These workers ligated the esophagus and terminal ileum of dogs and

found that they were able to live 36 to 57 days. Autopsy showed the gut to be collapsed with complete resorption of digestive juices. Such a procedure prevented aerophagia with consequent distention, increased intraluminal pressure, and decreased viability of the gut. Evidently, the mechanical factor of distention is more important than the "toxic factor" as the cause of death in ileal obstruction. Other evidence has been presented to show that toxemia is less important in intestinal obstruction than demineralization and dehydration.

SALIVARY SECRETION

Gantt has shown that there is a direct linear relationship between the weight of food eaten and the volume of the resulting salivary secretion. The time consumed in eating was found to have no significant effect on the response of the salivary glands.

Langstroth et al., by applying spectroscopic methods to saliva secreted in cats in response to stimulation of the chorda tympani nerve, report that a direct linear relationship exists between the sodium concentration of saliva and the volume-rate of secretion, whereas potassium concentration remains constant and independent of volume rate. At very low rates of secretion, however, the concentration of both sodium and potassium increases, revealing a significant degree of absorption of water at these low rates. The protein concentration of the saliva is also increased with the rate of secretion, but as stimulation continued, its concentration tended to drop as a result of exhaustion of its intracellular precursors.

Keszytus and Martin found saliva produced by sympathetic stimulation in dogs to be higher in potassium, calcium, organic solids, mucin, and albumin, and lower in sodium and chloride than saliva obtained by chorda stimulation. Apparently chorda stimulation produces saliva in the newborn. This saliva remains constant in composition until the thirtieth to fortieth day when coincident with the appearance of sympathetic innervation, its composition suddenly changes.

Pierce and Gregersen, by comparing the response of dogs with chronic salivary fistulae to continuous intravenous injection of pilocarpine before and after unilateral section of the chorda tympani, found, contrary to their expectations, the response of the denervated gland to be augmented. After two or three weeks, high levels were reached which persisted at least a year. This augmentation was not due to increased blood flow or to accumulation of preformed saliva in the duct passages. The authors do not attribute this to a specific sensitization produced by denervation since acetylcholine gave a greater response on the normal than on the denervated side.

Gibbs and McClanahan report that histamine, in contrast to acetylcholine, produces an irregular secretory response in the salivary gland when injected in minute doses directly into the arterial supply of the gland. When the stimulating effect of histamine was present, it was abolished by atropine and potentiated by eserine. Too, histamine did not potentiate acetylcholine stimulation, but did lengthen the effect of chorda stimulation. Thus histamine may act by permitting a continuation of the process initiated by nerve stimulation; it probably removes a natural "brake" mechanism. If this is true, it may be of significance in understanding paralytic salivary secretion.

Meyer et al. have reported that the ptyalin content of saliva is greatly reduced in old age. A protein formed by the salivary gland supposedly behaves as thrombokinase and is thus responsible for the blood-coagulating action of saliva. It has been shown that intravenous injection of saline produces thirst and reduces salivary flow.

Ivy et al. have shown that smoking stimulates the flow of saliva reflexly, that is, the smoke irritates the buccal mucosa. The flow of saliva was not stimulated by the nicotine absorbed from two or three cigarettes.

THE STOMACH

Bussabarger, Freeman, and Ivy found that removing the stomach from growing puppies caused faulty ossification of bones, even though the diet was adequate. The result was a homogeneous osteoporosis

which was often so severe that spontaneous fractures occurred. This osteoporosis was analogous to that observed in celiac disease without rickets. Apparently this deficient ossification was due to a combination of several factors, among which are the following: (1) there was an absence of hydrochloric acid, which normally renders the calcium salts more soluble and maintains an acid state in the intestine; (2) there was an increase in intestinal transport rate as the stomach no longer served as a reservoir; (3) calcium retention was not favored by postcibal acidosis. It has been shown by other workers that gastrectomies in growing pigs resulted in anemia, skin and spinal cord changes, osteoporosis, and extreme emaciation.

GASTRIC SECRETION

Pickett and Van Liere point out that appreciable degrees of anoxia distinctly diminish the volume and acidity of gastric juice, probably by depressing the activity of the secretory cells of the stomach. That the vagus was concerned was shown by the fact that the group of dogs with Heidenhain pouches was affected by less severe degrees of anoxia than the Pavlov group. Alvarez and Vanzant have shown that a fall of hemoglobin, such as is caused by anemia, to 75 per cent, is followed by a decrease in gastric acidity. Thus both anoxic and anemic types of anoxia produce decreases in gastric acidity.

Ivy et al. claim that smoking of an ordinary number of cigarets increased the acid output of the fasting stomach in only two of sixty human subjects, and the increase was so slight as to be of doubtful practical significance. They found depression of gastric acidity to be much more common. Thus they conclude that smoking is not conducive to peptic ulceration, nor does it aggravate its symptoms.

It is a well established fact that gastric secretion and motility are inhibited by the ingestion of fat. Farrall and Ivy proved this inhibition to be a humoral one, as oral administration of fat was found to inhibit motor activity of the transplanted and denervated gastric pouch. Quigley and Ivy

subsequently showed that sugars likewise inhibit gastric motility by a humoral mechanism. It has been demonstrated that the humoral agent is not fat or one of its products of digestion; nor is it bile, secretin, or cholecystokinin. Lim and his co-workers have proved this humoral agent to be a specific duodenal cholane and have successfully prepared extracts of duodenal mucosa which inhibited gastric secretion and mobility. This active principle was given the name enterogastrone.

In view of the wide variations between the ratio of secretory to motor inhibitions of various preparations of enterogastrone, it has been suggested that this substance consists of two principles—one which inhibits secretion and one which depresses motility.

Sandweiss et al. recently reported that extracts of pregnancy urine (antuitrin-S) are potent in preventing the development of jejunal ulcers in dogs subjected to the Mann-Williamson operation. Both Necheles and Sandweiss have prepared extracts from normal female urine which is potent in inhibiting gastric secretion of dogs; this definitely excludes prolactin as the active constituent as it originates in the placenta. Similar extracts of male urine are likewise potent in decreasing gastric secretion; however, no inhibition of gastric motility even with large doses could be observed by Ivy et al. Nechele and his coworkers claim that their urine extracts abolish or inhibit both gastric secretion and gastric motility in doses of 1 to 4 mg. As both the chemical and biologic behavior of this substance in the urine resembles the duodenal preparation of enterogastrone, it is likely that enterogastrone is excreted through the urine.

Quigley et al. recently investigated the claims that secretory activity of the gastric glands is accompanied by changes in electrical potentials of the gastric mucosa. They recorded the difference in potential between the inner surface of the stomach or pouch and the skin in dogs with a Pavlov pouch, but they could detect no changes accompanying either gastric secretion or motor activity. Milk, dextrose, and alcohol

lowered the potential of the pouch when they were introduced into the main stomach, but not when given intravenously. Emulsified fat has no such action; thus enterogastrone is eliminated as the agent responsible for the depression of potentials. The unknown activity on which the potential depends is abolished by the intravenous injection of sodium cyanide.

Some investigators still claim that the hormone, gastrin, is identical with histamine. However, it is likely that histamine is not gastrin, as atropine will abolish the gastric secretory response of dogs to a meal but will not abolish histamine secretion. There is apparently no increase in histamine in dog's blood during digestion of a meal. However, histamine is found in gastric juice in higher concentration than in the blood after sham feeding and histamine injections. The concentration of histamine increased with the rate of secretion of juice. Blood histamine is considered to be found in the formed elements and not free in the plasma; the blood histamine concentration remains unchanged on passing through the stomach. Thus, histamine is apparently formed in the gastric mucosa and secreted by the parietal cells. Some believe that histamine mediates the secretion of the parietal cells; the acetylcholine liberated by the vagus nerve liberates histamine which stimulates the parietal cell. Thus histamine is considered to be necessary in the normal secretory process of the parietal cell, but it is separate and distinct from the hormone, gastrin. It is claimed that histamine-free extracts of the pyloric mucosa, given intravenously, stimulate gastric secretion, and are not affected by atropine. The question as to whether or not histamine stimulates pepsin secretion is still unsettled.

Wilhelmj et al. have shown that the presence of high acidity in the stomach inhibits the gastric phase of secretion, and that high acidity in the intestine inhibits the intestinal phase of secretion.

Recent workers have shown that small doses of acetyl-B-choline produce a copious flow of highly acid gastric juice; large doses, however, have a reverse effect. Both

of these effects are abolished by atropine. This reversal of effect with dosage probably explains the contradictory reports in the literature as to the effect of choline derivatives on gastric secretion.

Studies on patients with achylia gastrica showed that they do not show a volume response to injections of histamine. Chemical studies proved that the parietal cells had made no contribution to the secretion.

It has been shown that the "intrinsic" factor of Castle is not elaborated solely by the gastric mucosa, for a potent anti-pernicious anemia preparation can be made from desiccated duodenal mucosa of hogs. It is claimed that normal gastric juice, in contrast to gastric juice obtained from patients with pernicious anemia, possesses proteolytic activity not due to pepsin, but, to the "intrinsic" factor. This is not a settled question by any means. Since the "intrinsic" factor is inactive at acidities below pH 2.5, Castle et al. suggest that this factor operates parenterally and not in the gastrointestinal tract. They also claim that the incubation of the "intrinsic" and "extrinsic" factors does not result in the formation of the thermostable principle in the liver.

Alcohol, given intravenously, increases the volume of gastric juice and lowers the total and free acid, according to Lolli, but there was no augmentation of mucus as there is following oral administration. Spies et al. point out that chronic alcoholism reduces gastric acidity and volume but not peptic activity.

Morrison believes that neutral red is eliminated from the gastric mucosa exclusively through the parietal cells; thus a test of secretory activity of these cells is afforded.

It has been pointed out that normal gastric juice has no effect on gastric secretion when injected into dogs; however, juice from subjects with pernicious anemia or cancer produced periods of achlorhydria. The active principle proved to be heat labile.

The effect of acids and alkalis on gastric emptying time has engaged the attention of

physiologists and clinicians for many years. Kussmaul and Hirsch are usually regarded as the pioneer workers in this field. Most investigators agree that gastric motility is inhibited when strong acids are added to the gastric contents, whereas the effect of weak acids is indeterminate. Too, most workers agree that alkali in small doses increases the number and depth of gastric peristaltic waves; thus average doses of sodium bicarbonate generally hasten stomach emptying. There is considerable evidence, however, that large doses of alkali inhibit gastric motility.

The acid-control theory of the pylorus suggested by Cannon in 1898 is no longer tenable. It is known, for example, that the achlorhydric stomach empties faster than the normal stomach; too, alkalis in moderate doses hasten gastric emptying.

Some evidence has been presented that the mechanisms controlling secretory and motor function of the normal stomach, in response to a meal, must be identical. This is certainly not true of achlorhydrics, whose stomachs often empty even more rapidly than normal, or in ulcer patients, who may have marked retention in stomachs with a relatively high acidity, even in the absence of organic obstruction. However, if the mechanisms controlling secretory and motor functions are identical in the normal stomach, it is logical that when acid is added to the gastric contents part of the need for secretory function is removed, so that less secretory work is done, and concomitantly, the motor function may be somewhat decreased. Conversely, if alkali be added, there is a stimulus for added secretory function—and thus there is augmentation of motor function. Some workers feel that there is no definite correlation between gastric acidity and motility, however.

Numerous investigators have shown that colloidal aluminum hydroxide gel exhibits considerable antacid action not only *in vitro* but *in vivo*. There is considerable disagreement, however, as to whether or not colloidal aluminum hydroxide exerts a stimulating effect on gastric secretion. Ivy et al.

noted slightly higher acid values for gastric contents after a plain test meal in dogs treated with aluminum hydroxide; Emery and Rutherford found an increase in the secretory response to histamine after 10 weeks' treatment with aluminum hydroxide. Einsil et al. were unable to duplicate the latter findings, however.

Komarov and Kreuger claim that colloidal aluminum hydroxide actually inhibits gastric secretion. Using dogs with Pavlov pouches, they found that the introduction of aluminum hydroxide into the main stomach often inhibited the gastric secretion in the isolated pouch. This inhibitory effect was most marked on the peptic power of the gastric secretion.

Coffey et al. report that hypnotic and anesthetic doses of barbiturates seem to decrease significantly gastric and pancreatic secretion. The hyposecretion of gastric juice following barbiturates may explain, at least in part, the benefit of these drugs as adjuncts in the therapy of peptic ulcer. Rather significant amounts of barbiturates were excreted in the gastric juice; however, it is likely that gastric lavage, unless repeated frequently, is not warranted in poisoning from large amounts of barbiturates.

GASTRIC MOTILITY

By means of three tandem balloons located in the pyloric antrum, the pyloric sphincter, and the duodenal bulb, Meschan and Quigley studied the gastric outlet. They found that these three regions operate as one functional unit; waves which originate in the stomach pass successively over all three structures. The sphincter operates to prevent regurgitation to a much greater extent than to regulate evacuation, for it tends to be passively relaxed most of the time, contracting only when a peristaltic wave hits it. This contraction persists while the wave passes over the duodenal bulb. Vagotomy does not disturb this complex, coordinated mechanism. There was no indication of antagonistic effects on the viscus and sphincter as is so generally presumed to occur. Fats, fatty acids, dextrose, soaps, and dilute mineral acids inhibit motility in the pyloric region. Bilateral vago-

tomies markedly decrease or abolish these inhibitory effects, indicating that they operate mainly through the enterogastric reflex.

By employing a differential manometer, Thomas was able to determine the differences of pressure between the duodenal and gastric sides of the pyloric sphincter in fistula dogs. When the stomach contained food, the intragastric pressure was generally higher than that in the duodenal bulb, even during periods of relative inactivity. During evacuation of solid foods, cyclic changes in pressure were observed which consisted of first an increase in intragastric pressure over intraduodenal, followed by a return of the intragastric pressure to that of the duodenum, and finally a rise of the intraduodenal over the intragastric pressure. Such a cycle probably represents the passage of a peristaltic wave. Frequently when liquids were evacuated from the stomach, incomplete cycles were noted. Typically, there was a lack of the initial augmented intragastric pressure. Direct proof that the pyloric sphincter plays only a secondary role in the regulation of normal gastric evacuation has been advanced by Crider and Thomas. They could detect no change in the emptying time of 5 per cent glucose, 0.05 N hydrochloric acid, olive oil, 10 per cent alcohol, or isotonic saline when the pyloric sphincter was kept open continuously by means of a special perforated tube.

Thomas and Crider observed that commercial peptones, intestinal contents of dogs during protein digestion, proteases, certain free amino acids (especially the α -aminoaminocarboxylic acids), or enzyme or acid digests of casein, when introduced into the lower duodenum of dogs, produce inhibition of pyloric antral motility with a corresponding delay in gastric evacuation. As the latent period was frequently about 15 seconds and vagotomy abolished this inhibition, it is likely that the vagi constitute the afferent pathway. Some of the individual amino acids appear to have no inhibitory effect; in general, the latent periods for inhibition following the injection of

protease preparations were slightly longer than those of other substances. Acidity was found to be a major factor in gastric inhibition only at pH's less than 3; thus, the acidity of chyme is of much less importance in the normal regulation of gastric evacuation than are the digestion products of food. Other investigators have shown that fat and carbohydrate in the intestine inhibit gastric peristalsis and delay gastric emptying. In order of inhibitory potency, fats come first, products of protein digestion second, and carbohydrates third. Cannon has pointed out that the gastric emptying times for the three types of food decrease in the same order.

Gastric inhibition is obtained by injection of the duodenal hormone, enterogastrone. Occasionally refractoriness is developed to repeated injections; more than likely this is due to impurities in the extract for continued response to the hormone elaborated physiologically has repeatedly been noted.

Brucke and Stern have investigated the innervation of the cardiac sphincter in cats, attempting to locate the adrenergic and cholinergic fibers and study their functions. They found that bilateral vagotomy produced a cardiospasm which was abolished by atropine and epinephrine, but exaggerated by eserine, acetylcholine, and pilocarpine. Too, stimulation of the peripheral end of the vagus produced relaxation of the sphincter. Thus the vagus was inhibitory to the sphincter; this was an effect of adrenergic fibers for the action was abolished by ergotamine and potentiated by cocaine. Similarly, stimulation of the splanchnics produced cardiospasm; this was due to cholinergic fibers as the action was potentiated by eserine and abolished by atropine. The vagus sometimes relaxes and sometimes contracts the stomach according to the tonus level.

It is important to classify autonomic nerves and interpret their function on the basis of their chemical mediator rather than on their anatomic origin. Proof of this is in the work of Gayet et al. who reported that stimulation of the splanchnics in vagotomized, atropinized, and eserinated

dogs with the adrenals removed liberated acetylcholine into the venous blood from the stomach regularly, from the small intestine, irregularly, and from the pancreas, inappreciably. Thus autonomic nerves are frequently mixed ones.

It has been shown that section of the splanchnics increases the motility of the empty stomach both as to duration of periods of activity and amplitude of contractions.

A new type of physiologic mechanism for accomplishing gastric and intestinal motor inhibition has been reported by Youmans and Meek. They found that mechanical stimulation of the rectum and anus in dogs inhibited gastric and jejunal motility and tone after vagotomy and removal of the adrenal medulla. This effect was abolished by chain ganglionectomy and splanchnic section; apparently, mechanical stimulation of the colon liberates a humoral inhibitor from the sympathetic nerve endings of the colon.

It has been shown that insulin has a stimulatory effect on gastric motility; this effect is mediated by the vagi. However, insulin probably has a peripheral inhibitory action as manifested by the fact that vagotomy not only abolished the excitation, but converted it to inhibition.

Stretching the rectum of a dog with pressure of 20 to 48 mm. of water inhibits the motility and tone of the empty stomach. However, recovery usually takes place while the pressure is maintained. Undiluted gallbladder bile placed in the rectum inhibits hunger contractions yet normal saline and 10 per cent glucose do not. Uspensky found that the application of heat and cold to the abdomen has variable effects on human gastric tone and mobility, depending partly on the previous state of the stomach.

Scott et al. contend that there is a lack of agreement between hunger sensations and hunger contractions. In man, the administration of alcohol inhibits hunger contractions yet hunger sensations are more intense. This group also found no causal relationship between blood sugar values and

normal hunger periods; apparently, the blood sugar level remains constant during periods of gastric activity and rest. However, Blotner finds insulin to be of value in malnutrition due to nervous dyspepsia; he believes insulin hypoglycemia induces hunger by augmenting hunger contractions.

Quigley et al. found that prolonged administration of large doses of aluminum hydroxide did not significantly alter the histology of the gastric tissue, the motility of the pyloric antrum, sphincter, or duodenal bulb, or the gastric evacuation time.

Ivy and Schnedorf contend that hunger contractions in man cease after the first few puffs of cigaret smoke; often smoking one cigaret inhibits the contractions for 15 to 60 minutes after the cessation of smoking. Tobacco smoke inhibits hunger contractions through a reflex mechanism, the motor side of which is in the vagi; small doses of nicotine do not have this inhibitory action. However, moderate smoking does not delay the emptying of a test meal from the stomach.

DUODENUM

The question of whether or not there is a duodenal hormone involved in carbohydrate metabolism is a much debated one. Reports that the injection or ingestion of certain extracts of the intestinal mucosa or stimulation of the duodenal mucosa with dilute hydrochloric acid causes a reduction of blood sugar concentration have led to a concept of a duodenal hormone which aids in the regulation of carbohydrate metabolism. Conti has reported that the hyperglycemia of diabetics is reduced by oral and duodenal administration of dilute acid. However, in carefully controlled experiments, Ivy, Loew, and Gray failed to yield evidence that acid stimulation of the duodenum reduces the hyperglycemia produced by absorption of glucose, intravenous injections of glucose, adrenalin injections, or removal of the pancreas. Thus, they conclude that acid stimulation of the duodenum has no influence, either humoral or nervous, upon carbohydrate metabolism. This same group has found that pancreatic-tissue free extracts prepared from intesti-

nal mucosa by secretin, insulin, and entero-gastrone methods, consistently failed to lower the fasting blood sugar levels of dogs. This evidence makes it extremely doubtful as to the presence of a hormone liberated by the duodenal mucosa which aids in the control of carbohydrate metabolism.

INTESTINAL MOTILITY

Youmans et al. observed that distention of the intestine led to motor inhibition of the gut above and below the site of distention. This inhibition passed chiefly over extrinsic nerve pathways, although some effect could be obtained over the intrinsic nerves when the extrinsic paths were cut.

Reid, Ivy, and Quigley have described spiral movements of the intestine. Such movements are probably produced by the "close spiral" muscles and are often independent of the longitudinal movements produced by the "long spiral" muscle. Weak electric stimulation of the anterior hypothalamus, superchiasmatic region, or ventral portion of the supramammillary decussation results in movements of the gut.

Morphine produces a transient increase in both propulsive and non-propulsive motility followed by high tone and complete loss of propulsive motility.

Stimulation of the vagus results in augmented motility of the villi, while stimulating the splanchnics produces inhibition. "Villikin," the hormone which increases the motility of the villi, is liberated by the introduction into the intestine of dilute hydrochloric acid but not glucose. Such an increased activity of the villi by the presence of hydrochloric acid results in faster absorption of glucose from the duodenum.

Alvarez has shown that rhythmic contractions in the small bowel are constant for any given segment. Thomas and Kuntz, by giving sufficient doses of nicotine to paralyze the synapses in the intrinsic intestinal plexuses, were able to arrest all types of motility which depend on the integrity of the plexuses, yet rhythmic contractions proceed regularly and constantly. They concluded that the rate of rhythmic contractions is probably a function of intestinal musculature. The rate of rhythmic

contraction of any given segment of bowel is a function of its distance from the pylorus, the loop at the highest level having the highest rate, that at the lowest level having the lowest rate. The rate is unaffected by fasting, feeding, or sleep, except that in the recently fed animal rhythmic contractions were less commonly observed than in the fasting animal. The rate was unaffected by degenerative vagal or splanchnic section.

A large number of inhibitory reflexes have been described, yet only two motor reflexes are known: the gastro-ileac reflex and the gastro-colic reflex, both of which are concerned with the ingestion of food. It has been known since 1886 that the ingestion of food is followed by increased motility of the ileum. Strikingly enough, there has been no convincing demonstration that the vagi, which are believed to be motor nerves of the small intestine, play any part in mediating motor reflexes. That this activity of the ileum to the ingestion of food is not entirely a psychic one is borne out by two findings: (1) merely presenting the meal to the animal without allowing it to eat does not result in the motor response of the ileum; (2) the motor response is as constant after feeding by a gastric fistula as after normal feeding. Douglas and Mann report that this response occurs constantly after double thoracic vagotomy; this was unexpected but does lend evidence to the independence of the intrinsic enteric mechanism. This does not prove entirely that the vagi do not play a part in mediating the motor response in the normal animal, but, in view of the marked similarity of response and time interval in normal and vagotomized animals, another means of mediation seems likely. As short-circuiting or complete isolation of the bowel decreased or abolished this response, even though the extrinsic nerve supply was intact, it is evident that the continuity of the intestine is necessary for this motor response. These findings also tend to indicate that there is no humoral mechanism involved. These co-workers claim that the type of activity, as well as the degree of activity, is governed

by the ingestion of food. Thus, in the fasting animal, there was little movement except for gentle segmentation, while, in the recently fed animal, there were peristaltic waves, tonus changes, and propulsive forms of segmentation.

There is no question that the thyroid gland exerts some influence on gastrointestinal physiology. All agree that this gland causes increased gastrointestinal motility when it hyperfunctions. Investigators have been trying to determine through what mechanism the abnormally acting thyroid gland exerts its effect upon the digestive tube. Many contend that the increased gastrointestinal motility in hyperthyroidism is produced by direct stimulation of the vagus by the hyperfunctioning gland. Morrison, Feldman, and others have shown that induced hyperthyroidism in the vagotomized dog produces increased gastrointestinal motility; thus the thyroid activity is probably independent of the vagus nerves. It is believed that the heightened basal metabolic activity accounts for this increased motility.

The possible existence of a humoral mechanism for the regulation of intestinal motility has been investigated. By introducing 0.4 per cent hydrochloric acid into the duodenum of a dog, under morphine-ether anesthesia, whose intestine had been completely denervated, it was shown that a flow of pancreatic juice resulted, but no effect on the motility of the intestine was noted. Such evidence is by no means conclusive as the experiment may be considered unphysiologic.

INTESTINAL ABSORPTION

More doubt has been cast on the role of the leukocytes in absorption of fat from the intestine. Leach claims that neither the lymphocytes or eosinophils of the intestinal mucosa contain fat particles. Too, while the phagocytic cells do contain fat granules, available evidence indicates that they are migrating towards and not from the intestinal lumen.

Various workers have tried to disprove the theory of Verzar that bile salts aid in fat absorption by rendering the fatty acids

more diffusible. These investigators claim that the higher unsaturated fatty acids, when combined with bile salts, do not diffuse through artificial membranes. Utilization of such membranes makes this very unsubstantial evidence, however.

Sinclair and others have demonstrated a rapid turnover of phospholipids in the intestinal mucosa of fed animals. Radioactive "labeled" phosphorus was used in these experiments. It is not settled whether this rapid turnover indicates that the phospholipids are intermediary products in the re-synthesis of absorbed fatty acids and glycerol, or whether phospholipids are synthesized in the intestinal mucosa and distributed to the rest of the body through the blood stream. In favor of the former contention is the fact that a phospholipidemia follows the feeding of fats. However, Hevesy and Lundsgaard, by feeding olive oil and "labeled" phosphorus to animals were unable to show that the increased phospholipids of the blood contained the "labeled" phosphorus.

Frazer has presented evidence to show that that portion of the dietary fat which is hydrolyzed forms soluble complexes with bile salts and is absorbed into the portal circulation to be stored in the liver, while the remainder of the dietary fat is absorbed without hydrolysis into the lymphatic system and is discharged into the general circulation to be stored in the fat depots.

It is a well established fact that patients with sprue, non-tropical sprue, and celiac disease do not show a normal rise in blood sugar or blood fats following the ingestion of glucose or a fatty meal respectively. The administration of liver extract improves both the diseases and the impaired absorption. Castle et al. believe the active principle to be the antipernicious anemia principle. Verzar believes that sprue is an adrenocortical insufficiency rather than a dietary deficiency; thus the liver extract is potent because it provides flavin phosphoric acid, which supposedly the body is unable to synthesize in the absence of the adrenocortical hormone.

There is a selective absorption of sugars in rats; glucose is absorbed 30 per cent

faster in the upper part of the intestine than the lower, while xylose, which is not selectively absorbed, is absorbed at the same rate along the entire small intestine. This selective absorption of glucose is specifically inhibited at lower temperatures. Verzar believes that this selective absorption is dependent on the presence of the adrenals, as their removal destroys the differential absorption rates for upper and lower segments of the small intestine. Conversely, Deuel et al., using adrenalectomized rats maintained in good health by the administration of salt solution, were unable to detect any disturbance of glucose absorption.

Further study on the humoral control of the movements of the intestinal villi and their role in absorption has been done. It was found that the introduction of hydrochloric acid into the duodenum of a dog stimulates the movements of the jejunal villi, thus augmenting the absorption of glucose by 20 per cent. Glucose under the same conditions was without effect. The humoral nature of the mechanism was demonstrated by cross-circulation experiments with carotid-to-carotid anastomoses. Thus the presence of acid in the donor dog increases the movements of the villi and absorption of glucose in the recipient dog. This active principle is called villikinin.

Evidence has been obtained that indicates the presence of active osmotic work by an unknown mechanism in the process of intestinal absorption. Visscher, Ingraham, et al. report that lower ileum of both anesthetized and unanesthetized dogs does osmotic work against a concentration gradient in absorbing sodium chloride from solutions containing mixtures of sodium chloride and disodic sulfate. Using dogs with Thiry-Vella loops, it was found that there was no chloride impoverishment in a high jejunal loop, but the chloride concentration falls rapidly while the sulfate increases in the ileal segments. The concentration of chlorine in the bowel may fall to as low as 0.5 per cent of the blood level. Thus the total osmotic pressure of intestinal contents reached values a half atmosphere below that

of blood plasma although the major solute constituents often showed concentration changes opposite to those expected on the basis of simple diffusion.

Upon studying a man with three feet of small intestine, it was found that absorption of carbohydrate was normal, while 25 per cent of the protein was lost; most of the fat was digested but 45 per cent appeared in the feces as fatty acids which interfered with calcium absorption. More evidence has been assembled supporting the classical concept that protein digestion occurs largely in the gut and very slightly in the blood; absorption of undigested food molecules is decidedly minute.

INTESTINAL SECRETION

Stimulation of the vagi produces secretion from Brunner's glands but not from other portions of the intestine. Ivy et al. were unable to collaborate the experimental evidence that acid in the duodenum leads to the production of a hormone, incretin, which supposedly decreases the fasting blood sugar level. (This work is cited above.)

A hormone, distinct from secretin, which excites the glands of the small intestine, has been described; it is called enterocrinin. Its mode of action is as yet undetermined, but it seems likely that enterocrinin acts directly on the glands of the intestine.

Schiffin and Nasset report that feeding causes a diminution of both enzyme concentration and total enzyme secretion of jejunal and ileal segments. This inhibition is overcome in the jejunum six to seven hours postcibum, but persists in the ileum for at least eight hours. As denervation results in an increase in enzyme concentration as well as total secretion after food, it is likely that the first stage inhibition was nervous in nature. Enterocrinin increases the concentration and quantity of enzyme secretion, but does not affect the pH, chloride, or total CO_2 . It has been shown that feeding or denervation augments the response to enterocrinin. Secretin is not effective when administered subcutaneously, but enterocrinin is when given in large doses.

GALLBLADDER

More evidence has been accumulated to show that the main function of the gallbladder is to store bile. Morphine delays gallbladder evacuation, presumably by its property of producing spasm of the sphincter of Oddi.

Evidence has been advanced indicating that there is biliary stasis during the last two trimesters of pregnancy. This is probably due to hypertonicity of the sphincter of Oddi, and may account for the high incidence of gall stones in women who have borne children.

BILE

It is claimed that bile administration increases the output of all the bile fractions. In the human, the increase of the "desoxycholic acid" group was greater than that of the cholic acid group; too, the bile acids conjugated to glycine were greatly increased.

Utilizing a human with a bile fistula, Jacobi et al. observed that a pure carbohydrate or pure fat diet does not augment the bile flow above the fasting level. Bile alone or a mixed diet or a high fat diet were equally effective in increasing bile output; however, a protein diet was twice as effective. Addition of bile to the high fat, pure carbohydrate, or mixed diet augmented the output but did not influence the flow from a high protein diet.

Haney et al., by employing the "bolus" method, found that gallbladder bile or a solution of bile salts markedly increased intestinal propulsion. Too, they found that other constituents of bile (bile pigments, calcium, mucin, or lipoids) had no effect. Thus bile salts may play an important role in the normal regulation of intestinal propulsion.

Further evidence has been presented showing that fatty acids play a more important role in maintaining cholesterol in solution and thereby preventing formation of gall stones than do bile salts or bile acids. Lauric and myristic acids are two to three times better solvents than other fatty acids and were forty to fifty times more effective than bile salts.

Ivy has shown that maximum gallbladder response to cholecystokinins takes place when the intravesical pressure is between five to twelve mm. of bile. Puestow believes that cholecystectomy leads to permanent loss of function of the sphincter of Oddi; still the ductus choledochus becomes dilated.

PANCREAS

It has been concluded that the splanchnic nerves to the pancreas are mixed nerves, containing both cholinergic and adrenergic fibers; the former are excitatory and the latter inhibitory. Ivy and Greengard have purified secretin to such an extent that 0.014 mg. constituted one Ivy dog unit. These coworkers have shown that secretin is a true chologogue for it stimulates the formation of bile by the liver after complete removal of the gastrointestinal tract. Injection of bile into a major pancreatic duct of dogs produces a prompt rise in serum lipase, associated with pancreatitis.

COLON

Larson has pointed out that the large intestine is distinctly a double organ, being made up of essentially the right and left portions. This is substantiated by its embryologic development, anatomic structure, and physiologic functions. Thus the proximal one-half of the colon is derived from the midgut along with that portion of the small bowel distal to the papilla of Vater; that portion of the colon distal to the splenic flexure takes origin from the hind gut.

It is claimed by some that amino acids and higher split products of protein are absorbed from the colon more rapidly than is usually reported. It is generally recognized that colonic contents assume the pH of the blood; thus if water at pH 7.3 were injected into the colon and if 20 minutes later the pH were determined, uncompensated acidosis or alkalosis could be recognized.

In a carefully controlled study of colonic motility in dogs, enemas of soap solution were usually effective in producing defecation. When, however, conditions were not suitable for defecation, the soap enema inhibited colonic motility. Diets low in calcium produce hypotonicity of the colon; diets low in potassium have a similar, but

less marked, effect. It is generally acknowledged that pitocin, pitressin, pituitrin, ephedrine, amyl nitrite, papaverine, and histamine decrease colonic tone and motility, while calcium salts, physostigmine, acetylcholine, and hypertonic sodium chloride increase colonic tone and motility.

It now appears that the bacterial flora can be controlled by dietary measures without inoculation with the desired microorganism. Thus rats can be placed on a meat diet until *L. acidophilus* has disappeared from the stool. However, the subsequent addition of banana powder, apple powder, or raisins restored *L. acidophilus* to the feces.

It is generally believed that smoking increases the motility of the colon and promotes the urge to defecate, and, as a rule, this is true. Thus prohibition of smoking by patients with any tendency toward irritability of the colon should be seriously considered. Thus the activity of the stomach tends to be depressed and that of the colon to be stimulated.

It has been shown that stimulation of the nervi erigentes increases colonic secretion.

SUMMARY

In evaluating the literature it is obvious that some work is more conclusive and more important than other investigations. This work is cited below.

Peptic ulcer: More evidence that hyperacidity is unimportant in the etiology of peptic ulcer has been advanced recently. Extensive investigation of the claims that lesions in the hypothalamus produce peptic ulcer shows this contention to be unwarranted. Noting that peptic ulcers occur only infrequently in pregnancy, workers studied the effect of sex hormones on ulcers and found that antuitrin-S decreases the incidence of ulcers in Mann-Williamson animals. There is an ascorbic acid deficiency associated with peptic ulcers; the significance of this has not been shown.

Intestinal obstruction: Wangensteen et al. have strikingly shown that the mechanical factor of distention is much more important than the "toxic factor" as a cause of death in ileal obstruction.

Salivary secretion: The saliva produced by sympathetic stimulation differs constantly from that produced by chorda stimulation. There is a direct linear relationship between the weight of food eaten and the volume of the resulting salivary secretion.

Stomach: Ivy et al. have shown that gastrectomies in growing puppies produces a faulty ossification or homogenous osteoporosis of bones, even though the diet was adequate.

Gastric secretion: Recent investigators report that the smoking of an ordinary number of cigarets increases the acid output of the fasting stomach most infrequently; in fact, depression of gastric acidity is much more frequent. Thus it seems likely that smoking is not conducive to peptic ulceration.

The ingestion of fat or sugars causes the inhibition of gastric secretion and motility by means of a humoral mechanism. The active principle is a specific duodenal cholane: enterogastrone. It is likely that enterogastrone is excreted through the urine, as numerous investigators have prepared extracts from urine, the chemical and biologic behavior of which resembles that of the duodenal preparation of enterogastrone. These extracts thus inhibit gastric secretion and motility.

The consensus among reliable investigators is that the hormone, gastrin, is not identical with histamine. It is likely that histamine mediates the secretion of the parietal cells: the acetylcholine liberated by the vagus nerve liberates histamine which stimulates the parietal cell.

It has been shown that the "intrinsic" factor of Castle is not elaborated solely by the gastric mucosa, for a potent anti-pernicious anemia preparation can be made from desiccated duodenal mucosa of hogs. Some claim that the "intrinsic" factor possesses proteolytic activity.

There is considerable disagreement as to whether colloidal aluminum hydroxide exerts a stimulating effect on gastric secretion or not; some claim that it actually inhibits gastric secretion.

Gastric motility: It has been shown that the pyloric antrum, the pyloric sphincter, and the duodenal bulb operate as one functional unit; the sphincter acts to prevent regurgitation to a much greater extent than to regulate evacuation.

Conclusive evidence that fats, products of protein digestion, and carbohydrates (listed in order of inhibitory potency) produce inhibition of gastric motility with a corresponding delay in gastric evacuation has been advanced.

There seems to be lack of agreement between hunger sensations and hunger contractions. Apparently, no causal relationship between blood sugar values and normal hunger periods exists.

Duodenum: The question of whether or not there is a duodenal hormone involved in carbohydrate metabolism is a much debated one. Ivy, Loew, and Gray present evidence which makes the existence of such a hormone extremely doubtful, however.

Intestinal motility: The introduction of dilute hydrochloric acid into the intestine increases the motility of the villi through a hormonal mechanism. The active principle is called "villikinin."

Despite the large number of inhibitory reflexes described, as yet only two motor reflexes are known: the gastro-ileac and the gastro-colic reflexes. Strikingly enough, there is no convincing evidence that the vagi play any part in mediating motor reflexes. The gastro-ileal response seems to be mediated by the enteric intrinsic nerve mechanism.

Intestinal absorption: More doubt has been cast on the role of the leukocytes in the absorption of fat from the intestine. There is a rapid turnover of phospholipids in the intestinal mucosa of fed animals; possibly, these are intermediary products in the re-synthesis of absorbed fatty acids and glycerol. Selective absorption of sugars has been demonstrated in rats: glucose is absorbed 30 per cent faster in the upper part of the intestine than the lower, while xylose exhibits no such selective absorption.

Visscher et al. have obtained evidence that indicates the presence of active osmotic

work by an unknown mechanism in the process of intestinal absorption.

Intestinal secretion: A hormone, distinct from secretin, which excites the glands of the small intestine, has been described; it is called enterocrinin.

Gallbladder: Evidence has been advanced indicating that there is biliary stasis during the last two trimesters of pregnancy; this may account for the high incidence of gall stones in women who have borne children.

Bile: Further proof has been presented showing that fatty acids play a more important role in maintaining cholesterol in solution and thereby preventing the formation of gall stones than do bile salts or bile acids. Bile salts seem to play a part in the normal regulation of intestinal propulsion.

Colon: It appears that bacterial flora can be controlled by dietary measures without inoculation with the desired micro-organism. As a general rule, smoking increases the motility of the colon and promotes the urge to defecate.

It is claimed by some that amino acids and higher split products of protein are absorbed from the colon more rapidly than is usually reported.

CONCLUSION

Because of the vast amount of conflicting experimental work, it is difficult to draw any definite conclusions concerning many phases of gastrointestinal physiology.

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DOCTORS IN THE SERVICE

As one meets, sees and talks with doctors throughout the state, he is impressed with the burden that is being placed on the shoulders of the doctors who have not gone into the military services. Everywhere it is found that as the younger men have gone into the Army or Navy, the older doctors have been taking on additional responsibilities and additional work of all kinds. The doctor in civilian practice will have responsibilities thrown upon his shoulders, not

only for the care of the sick civilian population in greater numbers than ever before but also he will have the care of the indigent, leadership in civilian defense and the maintaining of health standards in his community. A further burden that he will be asked to carry, if it becomes organized and functioning, probably will be the rehabilitation of the men who were turned down by the Selective Service on account of physical defects which are remedial. He will have to play an important role in rehabilitating these individuals. Of course there are certain compensations in this extra work, notably the satisfaction of doing a job well but also because additional income will accrue to the man whose practice is materially increased, which income in goodly part will go to the Government for income tax. However, the added revenues will most certainly not repay a man for the energy which he will have to give, the strain he will be under and the uneven prolonged day's work he will have to carry on for twelve to twenty hours.

It is very satisfactory indeed to observe how willing and anxious the men are in the State of Louisiana under the age of 45, to volunteer and to get into active service and to do something for their country. Almost to a man they seem to be desirous of going and when their applications for active duty are not acted upon sufficiently quickly they seem to resent their being held back. All credit should go to these younger doctors for their desire to serve their country. It will be that their income, in most instances, will be materially reduced and many of them are fearful that on their return to civil life their practices will be gone. This, however, was not the experience in the last war. Also these men are going with a good and brave heart. Service in the Army does not imply freedom from danger and even death. The Medical Corps in the last war suffered a very large number of casualties, larger than any other special service, so that the younger doctor with combat troops going forth to war, risks injuries which may be even fatal. However, as with all young men who are going into

the Army, they are accepting this contingency with the thought that if anything does happen to them they are doing it to preserve a way of living which entitles them, their families and all Americans to freedom of thought and of action.

A SCARCITY OF DRUGS?

The receipt of a notice from the chairman of the Committee of Revision of the U. S. Pharmacopeia relative to a change in the mercury content of blue ointment, ammoniated mercury, white precipitate ointment and mild mercurial ointment, is indicative of what possibly may be a serious shortage in some of the essential therapeutic agents employed by the physician. As a matter of fact already conferences have been held by the National Research Council and others pertinently concerned with the problem as to conserving our supply of essential drugs and medicaments brought from overseas. The mercurial content has been materially reduced in these several ointments in order to preserve the present stock of mercury. The price of bichloride of mercury tablets has jumped by leaps and bounds. It is impossible to purchase these important antiseptic agents at many drug-stores.

It is to be wondered just how severely felt will be the shortage in many of our drugs, the supply of which comes from China, India, the East Indies, Italy and other countries from which these can no longer be purchased. Many of the galenicals can be grown in this country. The fox-glove grows luxuriantly in all parts of the United States and actually is an extremely pretty garden plant. The deadly nightshade likewise is a most attractive garden flower not widely grown because of its poisonous qualities. The fungus *Claviceps purpurea* is found in the grain fields of North America. *Nux vomica* comes from India, the seeds of a tree indigenous to that country. Quinine of course comes from the bark of cinchona tree of Java. Peruvian bark represents 90 per cent of the quinine used in this country. Ephedrine occurs in various plants of the genus *Ephedra* and grows in

temperate subtropical areas of Europe, Asia and America but most of the supply of the United States comes from northern China. It would take some years, of course, to obtain a supply of these drugs that come from trees; probably the cinchona tree would grow only in Central America although the other trees can grow in colder latitudes. Gum camphor comes also from camphor trees in the East Indies and could possibly be cultivated in this country.

In so far as the mineral and chemical remedies are concerned, the greater part of these can be obtained from sources which are still open to the United States. Mercury is probably the only element, the supply of which is likely to fail. The supply of arsenic, bismuth, antimony, iodine and other minerals is apparently entirely adequate and there is no visible or likely need to restrict the use of these chemicals. Most of the chemical preparations can and are manufactured in this country. Synthetic preparations of all kinds are being substituted to a great extent for already existing pharmaceutical preparations; they can substitute in most instances effectively for the materials that are scarce or unavailable.

There does exist a very real necessity to conserve alcohol and glycerine. They are used to such an extent in the manufacture of munitions that they are more and more difficult to obtain, and most expensive. There is a real shortage of the volatile oils. However, these substances are relatively unessential to the care of the man truly ill. The fact that lavender can no longer be obtained to scent soaps and that oil of rose will be gone in a short time, is probably of greater importance and interest to the cosmeticians and the female sex of the population than it is to the medical profession.

BREAST PAIN

Nathanson* and his coworkers present a method of treatment of a syndrome which is quite common and for which adequate therapy is not generally applied. In women at the time of the menopause this syndrome is characterized by swelling of the breasts and pain, sometimes with and sometimes

without secretion from the nipple. The syndrome occurs in a very large number of women but often it is not particularly painful and not especially disturbing. Nearly all women have changes in the breasts which they are not aware of in many cases until discovered on routine examination. Others have a great deal of pain and discomfort and because of their fear of cancer will consult a physician.

The authors point out that usually the condition is spoken of as "chronic cystic mastitis" but that it should be more specifically cataloged. The syndrome is presumed to be a sex-hormone imbalance, the nature of which is not entirely clear. If this assumption is true the solution of the problem of treatment resolves itself around the administration of the sex hormone as suggested first by Cutler some eleven years ago. The sex hormone testosterone is given as result of experimental work in animals which shows that this particular hormone not only reduces the secretory activity of the gland but may actually reduce the number of hyperplastic epithelial cells. Presumably also it minimizes the venous congestion and edema observed in the human.

For the last six years these authors have been giving to selected patients testosterone injected intramuscularly, 10 mg. of testosterone propionate in 1 c. c. of sesame oil beginning about two weeks before the anticipated period. In the more severe cases the hormone was given daily throughout the menstrual cycle and in larger doses. They have also administered it in the form of an ointment rubbed into the skin of each breast before retiring.

The patients were carefully studied and those in whom the psychogenic element predominated were excluded, likewise those who had spontaneous remissions after being observed for a period of time. The patients selected for treatment had to have severe discomfort, the presence of marked nodularity of the breast and secretion, failure to control the symptoms with breast support or a placebo, failure of estrogenic therapy and failure of demonstrable pelvic disease, plus intelligence on her part in order to obtain reliable information. The tables the authors present definitely show the excellent results from this method of treatment. Complete relief or improvement was noted in nine patients who had adenofibrosis. In 21 individuals with nonpuerperal mammary secretion no change was noted in three, complete relief was obtained in 12 instances and there was definite improvement or relief of physical signs in 15. Eighteen of the patients showed relief or improvement in regard to the secretion, although complete relief of the physical signs was obtained in only three.

Nathanson et al. warn against prolonged and continuous treatment, especially with large doses of this substance. They caution concerning the selection of patients, pointing out those with a predominant psychogenic element probably will not have much relief. In those in whom testosterone is given there should be planned periods of treatment succeeded by appropriate rest intervals.

*Nathanson, I. T., Meigs, J. V., and Parsons, L.: The treatment of mammary pain and secretion with testosterone propionate, *New England, J. M.*, 226:323, 1942.

HOSPITAL STAFF TRANSACTIONS AND CLINICAL MEETINGS

TOURO INFIRMARY

New Orleans

The regular meeting of the Medical Staff of the hospital was held on Wednesday, April 8. The

scientific program consisted of the following: Clinico-pathologic Conference by Dr. S. Harvey Colvin; "Gouty Arthritis: Factors in its Diagnosis" by Dr. Daniel M. Kingsley; "Stokes-Adams Syndrome" by Dr. Oscar Blitz.

TRANSACTIONS OF ORLEANS PARISH MEDICAL SOCIETY

TRANSACTIONS OF THE ORLEANS PARISH MEDICAL SOCIETY

During the month of April the Society held one regular scientific meeting. The program was as follows:

- a. Case Report—Postpartal Hematoma of the Vulva

By Drs. John S. Herring and J. P. Michaels.

- b. Clinical Status of Typhus Fever at Charity Hospital

By Dr. Cheney C. Joseph.

- c. Blood Volume in Common Clinical Conditions

By Dr. George R. Meneely.

Reports of Officers and Committees for the first quarter of 1942 were also read at this meeting.

NEWS ITEMS

Drs. H. T. Beacham, W. E. Kittredge, W. A. Reed, R. F. Sharp, E. G. Vickery and H. W. E. Walther attended the eighth annual meeting of the Southeastern Section of the American Urological Association held in Chattanooga, March 19-21. This Association has selected New Orleans as their meeting place in 1943.

Dr. Waldemar R. Metz presented a paper on Some Principles of Plastic Repair at the annual meeting of the Southeastern Surgical Congress held in Atlanta, March 9-11.

At a recent staff meeting of the Mercy Hospital Dr. Lucien Fortier presented a paper on Interesting X-ray Cases. Drs. Edgar Hull and Louis A. Monte presented a paper on Interesting and Unusual Heart Cases at this meeting.

Edwin L. Zander, M. D.,
Secretary.

CALENDAR OF MEETINGS

- May 4. Orleans Parish Medical Society Board of Directors, 8 p. m.
May 5. Eye, Ear, Nose and Throat Staff, 8 p. m.
May 6. Clinico-pathologic Conference, Charity Hospital Morgue Amphitheater, 1:30 p. m.
Mercy Hospital Staff, 8 p. m.
May 7. Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.
Baptist Hospital, Executive Meeting, 8 p. m.
May 11. Orleans Parish Medical Society, Scientific Meeting, 8 p. m.
May 13. Clinico-pathologic Conference, Charity Hospital Morgue Amphitheater, 1:30 p. m.

Touro Infirmary Staff, 8 p. m.

Women's Auxiliary, Orleans Parish Medical Society, Orleans Club, 3 p. m.

- May 15. I. C. R. R. Hospital Staff, 12:30 p. m.

- May 18. Hotel Dieu Staff, 8 p. m.

Clinico-pathologic Conference, Baptist Hospital, 8 p. m.

- May 19. Charity Hospital Medical Staff, 8 p. m.

- May 20. Clinico-pathologic Conference, Charity Hospital Morgue Amphitheater, 1:30 p. m.

Charity Hospital Surgical Staff, 8 p. m.

Clinico-pathologic Conference, Hotel Dieu, 8:15 p. m.

- May 21. Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.

- May 26. Baptist Hospital Staff, 8 p. m.

- May 27. French Hospital Staff, 8 p. m.

Hutchinson Memorial Clinic Staff, 8 p. m.

- May 28. Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.

- May 29. L. S. U. Faculty Club, 8 p. m.

New Orleans Hospital and Dispensary for Women and Children Staff, 8 p. m.

NUTRITION IN CIVILIAN DEFENSE*

Oscar W. Bethea, M. D.
New Orleans

The health of the people is a major problem at all times. Now, it is also a matter of military necessity. Not only must the men in the service and the workmen in the fields and factories be at their best, but the physical fitness, and coincidentally the morale of all the others, assume an importance that cannot be over-estimated.

Even before present restrictions in production, transportation and distribution, our diets were unsatisfactory for producing and maintaining the best possible state of well-being. Few indeed suffered from inadequate amounts of carbohydrates, proteins and fats, but the food-intake of the majority was deficient in one or more of such essentials as iron, calcium, phosphorus, and the various vitamins.

McLester once remarked, "It is not merely safety in nutrition that is sought. It is the optimum, and that requires thought." This applies with added force to the present stressful times, as we realize the necessity of rising above our rather mediocre peace-time level. Science has fairly well demonstrated the possibilities that are within our reach.

Sherman and Campbell have stated, "Enrichment of an already adequate diet in respect to its

*Read before general meeting of the Orleans Parish Medical Society on Civilian Defense, March 9, 1942.

calcium, vitamin A or riboflavin content resulted in an improvement in the animal's nutritional well-being, health, and longevity." McCormick has submitted rather convincing evidence of the improvement in sustained physical performance resulting from an increased vitamin intake.

In the study of the food-intake of a large group of Americans, Sherman found 16 per cent definitely deficient in calcium. From an analysis of the data obtained in his study, he also stated that the average diet does not carry an entirely trustworthy surplus of iron.

Some time ago, in collaboration with Bristow, the records of a large group of young women were studied from the standpoint of the hemoglobin content. These individuals averaged from 18 to 25 years of age, and came from several states. Twenty-six per cent were found to have a hemoglobin of 65 per cent or less.

Throughout the centuries of world history, the people have depended largely upon grain for their vitamin B-complex and every country has been well supplied with this valuable material. The Egyptian had his wheat, the American Indian his corn, the Oriental his rice. Many countries had several kinds of grain available. In the latter part of the last century, new processes were developed for improving the appearance of grain products and causing them to keep longer in commerce. These processes, however, removed most of the vitamin content. For example, Cowgill found that white flour contained only about 5½ per cent of the vitamin in the original wheat. He remarks further that American dietaries as a whole are unsatisfactory with respect to their content of vitamin B-1.

Many of us have been inclined to think of vitamin deficiencies in terms of the very poor. Sinclair sums up present medical opinion when he says, "Rich children fed on highly refined foods and stuffed sweets may fare worse than poor children eating scraps."

We must not think of vitamin deficiencies only in terms of definite diseases such as scurvy, rickets, pellagra. These represent but the smallest fraction of the sum total of those who are more or less handicapped. Brown has stated, "Many people are in a condition of marginal or actual vitamin deficiency, and many show no deficiency signs. When the deficiency exists, it is usually a multiple vitamin deficiency." Sinclair also says, "Vitamin deficiencies are rarely single."

By way of suggesting a way out, Youmans recommends "Preference should be given to adequate diet, concentrates or similar preparations of natural foods, and pure vitamins in the order named."

Pure vitamins and the various polyvitamin preparations have served a most useful purpose but their value certainly is being exploited by commercial houses. In 1938 the people of the United States spent over one hundred million dollars for

these preparations. Last year it was probably two or three times that amount.

It has been aptly said that the best way to take vitamins is with a knife and fork, and it is this phase of the vitamin problem with which we are concerned in our present program.

Many years ago I realized my inability and my lack of time to tell each patient off-hand which foods to take to secure the best results from the standpoint of general health. I realized even more the inability of the patient to remember such suggestions. To meet my requirements, I arranged a list of about forty of the more desirable foods, had it multigraphed, and have tried to place one of these sheets in the hands of each individual looking to me for health; when desirable, adding verbal instructions and explanations and often making corrections or additions on the sheet given. While I have called it, "Some Vitamin Containing Foods," I have tried to arrange it from the standpoint of a balanced food-intake covering the various essentials. It is not intended as a diet list, but merely as a group of items to be emphasized in the diet. I acknowledge its many shortcomings. Many items rich in various vitamins, calcium, iron, have been omitted. I have been guided largely by palatability, cost, and availability in this market. In some instances, items are included that carry only a small percentage of a desired food-essential but they are of such a type that they are taken in relatively large amounts.

In the present emergency, the Government has undertaken to improve the well being of the population and a major consideration naturally is attention to diet. A National Committee was formed and various local Committees are being organized. We have one in New Orleans. I was appointed by this Society to serve on this Committee as their representative.

In the discussions that developed at our meetings, I mentioned my plan for securing dietary efficiency for those under my care and suggested the program that I am presenting to you tonight. It met with the unanimous approval of the Committee, and I am presenting it as coming from that body.

First: That this Society appoint a Committee to arrange a list of desirable foods that we would recommend as needing emphasis in the food-intake of the people in this community.

Second: That this Committee cooperate with those other agencies concerned with better diet programs in the schools and for welfare work, so that the recommendations that are presented to the public by teachers and welfare workers may come with the added force that it was recommended by their physicians.

Third: That these lists be made available to all physicians at a moderate price or that physicians be permitted to have them printed bearing their own names, and that every physician of this city be urged to get one of these lists into the hands of

everyone looking to him for health, and that the importance of verbal explanations and instructions be emphasized.

Fourth: That effort be made to extend this movement to the State Medical Association.

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LOUISIANA STATE MEDICAL SOCIETY NEWS

C A L E N D A R

PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
East Baton Rouge	Second Wednesday of every month	Baton Rouge
Morehouse	Second Tuesday of every month	Bastrop
Orleans	Second Monday of every month	New Orleans
Ouachita	First Thursday of every month	Monroe
Rapides	First Monday of every month	Alexandria
Sabine	First Wednesday of every month	
Second District	Third Thursday of every month	

FIFTH DISTRICT MEDICAL SOCIETY

The first meeting of the year was held at the Virginia Hotel in Monroe on Tuesday, April 7. The scientific program was preceded by a dinner at which nearly 150 were in attendance. During the dinner there were half a dozen informal talks, including a very excellent one by Dr. Paul T. Talbot, Secretary of the State Medical Society. Following this the regular formal program was presented, which started with a most heartening and stimulating talk on the affairs of the State Society by Dr. King Rand, President of the organization. Dr. James S. McLester, of Birmingham, then discussed "The Nutrition of the American People in Time of War." Major Frank P. Rizzo of the Selective Service had as a title for his remarks "The Procurement and Assignment of Physicians." He pointed out how doctors were to be procured, how they are to be assigned and then he dwelt on the tentative plans for rehabilitation of the draftees rejected for remedial defects. Dr. John H. Musser completed the program with a discussion of "The Heart in Mid and Late Life."

NEWS ITEMS

The American Public Health Association has prepared and issued two reports which may be of general interest, certainly of special interest to those concerned. The first has to do with the educational qualifications of industrial hygienists, and the second has to do with the educational qualifications of nutritionists in health agencies.

The American Bureau for Medical Aid to China is preparing to spend over a \$1,000,000 next year to aid this ally of the United States. Those interested in the work of this organization can send contributions to the National Headquarters, 1790 Broadway, New York, New York.

The Annals of Surgery, the oldest surgical journal in the English language, is now preparing as a gesture of friendship to our Central and South American colleagues an edition published in the Spanish language.

The American Medical Golfing Association will hold its twenty-eighth annual tournament at Seaview Country Club, Atlantic City, on Monday, June 8. Forty prizes will be awarded. All male fellows of the American Medical Association can

belong to this active physio-social organization. Communicate with Dr. Bill Burns, 2020 Olds Tower, Lansing, Michigan, for application blank.

The eighteenth annual meeting of the American Heart Association will be held at Chalfonte-Haddon Hall, Atlantic City, on Friday, June 5. Dr. Paul D. White is president of the organization. The meeting, as has been customary in the last few years, will be divided into two sections, one devoted to cardiac disease, the other to the study of the peripheral circulation.

The Medical Library Association will hold its 44th annual meeting in New Orleans, May 7-9, 1942. The hosts are the Rudolph Matas Medical Library of Tulane University, the Orleans Parish Medical Society Library and the Agramonte Memorial Library of Louisiana State University Medical Center. Hotel headquarters will be at the Jung Hotel. The program will feature tropical medicine and southern medical history. The President of the Association, Miss Mary Louise Marshall will preside.

An intensive course in electrocardiography will be given at the Michael Reese Hospital, Chicago, Illinois, by the Director of Cardiovascular Research, Dr. Louis N. Katz. The course will last for two weeks from August 17 to August 29. This is a course offered principally for the general practitioner.

There is an opening for an eye, ear, nose and throat specialist in Shreveport, La. Further information may be obtained from the office of the Journal.

A physician is wanted for general practice in Bonita, La. For further information communicate with Mr. Arthur Baggett, Baggett Pharmacy, Bonita, La.

United States Public Health Service

Assistant Surgeon James A. Finger has been ordered to the United States Marine Hospital, New Orleans, for duty. Assistant Surgeon Edward P. Cutter has been relieved from duty in New Orleans and ordered to Jacksonville, Florida. Passed Assistant Surgeon Frederick G. Gillick has been relieved from duty in New Orleans and ordered to Jackson, Miss., as State Health Officer. Surgeon David B. Witt has been ordered to the Central Regional Office, Courthouse, Alexandria, La., for duty.

The general oral and pathological examinations (Part II) for all candidates (Groups A and B) will be conducted at Atlantic City, N. J., by the entire Board, from Thursday, June 4, through Tuesday, June 9, 1942, prior to the opening of the

annual meeting of the American Medical Association.

Group A, Part II, candidates will be scheduled for examination the first part of the examination period, and Group B, Part II, the latter half. Formal notice of the time and place of these examinations will be sent each candidate several weeks in advance of the examination dates.

DECONTAMINATION OF EYES AFTER EXPOSURE TO LEWISITE AND MUSTARD

Since publication of the Office of Civilian Defense handbooks, "First Aid in the Prevention and Treatment of Chemical Casualties" and "Protection Against Gas," further experience has shown that the 2 per cent solution of hydrogen peroxide recommended for the treatment of eyes following Lewisite burns may be injurious if used undiluted. The Chemical Warfare Service now recommends a single instillation in the eyes of a 0.5 per cent solution of hydrogen peroxide as soon as possible after contamination with Lewisite. This solution may be prepared by diluting one part of a 2 per cent solution with three parts of water, or one part of a 3 per cent solution with five parts of water. The solution usually found in drugstores is the U. S. P. strength of 2.5 to 3.5 per cent hydrogen peroxide. A 0.5 per cent solution of potassium permanganate has also been found effective as an eye instillation following exposure to Lewisite.

In planning decontamination stations, the Medical Division, Office of Civilian Defense, recommends that provision be made near the entrance of the second or shower room for the irrigation of the eyes of contaminated persons. The schematic sketch of a decontamination station in the Office of Civilian Defense publications mentioned above shows the irrigation of eyes in the dressing room, whereas this should be carried out in the second or shower room before the bath is given. Delay until the casualty reaches the dressing room will result in more serious injury to eyes which have been contaminated with mustard or Lewisite.

CONFERENCE OF SOCIAL WORK

The meeting of the National Conference of Social Work and associated groups will be held in New Orleans the week of May 10-16. The organization is made up of the parent association plus innumerable associated groups, ranging from the Salvation Army and the U. S. O., to the National Tuberculosis Association, National Council of Young Men's Christian Association and Birth Control Federation of America. There are five sectional meetings, programs of which will be presented on subjects of interest not only to the social worker but to the physician who comes in contact with the activities of the various groups represented at the meeting.

WAR SESSION MEETING, AMERICAN COLLEGE OF SURGEONS

On March 16, 1942, the American College of Surgeons held a one-day meeting at the Jung Hotel, New Orleans, bringing to the medical professions of both Mississippi and Louisiana the latest methods in treatment and care of present war casualties.

In the beginning of the year the Regents of the College held a meeting to discuss plans for sectional meetings to be held throughout America. A plan was presented to the regents by the associate director, which differed entirely from the previous type of meetings. It was suggested that one-day meetings be held in each state. In a few instances, due to geographical conditions, two states would participate in the program.

The meetings are called the War Sessions of the American College of Surgeons for the medical profession of America. The programs consisted of treatment of all types of war injuries, treatment of war injuries of skull and face, war injuries of chest, the organization and functions of the medical department of the U. S. Army, the organization and function of the medical department of the U. S. Navy, the doctor and the hospital in civilian defense, the procurement and assignment service, treatment of wounds of soft parts, treatment of all types of fractures, treatment of burns, the prevention and treatment of shock, the activities of the American College of Surgeons and their relationship to the defense program, and an excellent resume by Doctor Rudolph Matas of the part Tulane University took in the activities of World War I.

The speakers at this meeting were as follows: from Louisiana—Drs. R. Matas, Dean H. Echols, Alton Ochsner, C. Grenes Cole, Urban Maes, Guy Caldwell, Mims Gage, Neal Owens, Michael DeBakey; from Mississippi—Drs. Augustus Street and Edward C. Parker; from Alabama—Dr. Judson D. Dowling; from the Army and Navy—Colonel Hugh J. Morgan, Major Sam F. Seeley, Army; and Captain Frederick R. Hook, Navy.

By these one-day meetings, the entire medical profession of America has brought to them not only what is expected of them in regard to military associations with the armed forces of the United States, but the most modern and accepted methods of treating war wounds. This enlightenment will give a panoramic view of what is expected of the medical profession in this the greatest endeavor undertaken by the medical profession.

There was a delightful banquet held in the Tulane room, presided over by Dr. Edward Parker, of Gulfport, Miss. At this banquet, the chairman of the Louisiana State Credentials Committee spoke on the activities of the College and its members in the last war, of which membership 99 per cent were on active duty at the time of the armistice. He also outlined the benefits that the public has received from the crusade of the College, especially

as regards the standardization of surgical technic, operating room technic, surgical instruments, suture material and gauze dressings, the standardization of hospitals, the creation of surgical residences in a great number of hospitals. In fact, the highest aim and the College's definite policy of constantly elevating the practice of surgery and its specialties has been rewarded by the high type of surgeon and surgical specialists found in almost every hamlet of America. For this the entire medical profession and the laity owe to the College a debt of gratitude that is difficult to repay.

Dr. Matas addressed the entire conclave on the part Tulane took in World War I. A somewhat condensed outline of his speech follows:

At the dinner which closed the one-day session of the American College of Surgeons, held in New Orleans, Monday, March 16, 1942, at the Jung Hotel, Dr. Matas emphasized the value of reviewing the experiences, methods of organization and training which proved of inestimable value during the last war, as a basis for similar organization and centers for training in the present war. Just as it is right to remember the medical men who served their country then, it is hoped that those who serve in the present war will be remembered by future generations.

Dr. Matas outlined the activities of the medical profession in Louisiana during World War I as follows: (1) Medical reserve corps examining boards and medical reservists; (2) Louisiana Council of Medical Defense (a branch of the National Council, with sections devoted to Health, Sanitation and Medical Research); (3) Medical Draft Board of Examiners; (4) committee to standardize medical supplies; (5) Reserve Officers' School of Intensive training in the treatment of fractures, wounds, and other war injuries, New Orleans; (6) Tulane Base Hospital No. 24; (7) Red Cross First Aid Courses; (8) Loyola Base Hospital 102 (under Dr. J. Danna); (9) examining surgeons at Barracks; (10) Tulane University graduates in service (estimated at 578), and undergraduates active soldiers (Camp Martin); (11) hospital staffs; (12) surgeons in the Navy; and in addition, 450-500 nurses served in the Red Cross, Base Hospitals, and Encampments.

Dr. Matas recalled in some detail the Tulane Base Hospital No. 24, which he organized, and the Reserve Officers' School for Intensive Training in War Wounds, Fractures and other war injuries, of which he was the director.

He stressed the importance of the New Orleans Chapter of the American Red Cross under Mrs. George Penrose and Mr. Frank B. Hayne in founding the hospital unit; of Mrs. Tipping as chief organizer of nurses in New Orleans; and Miss Ethel Holmes, acting chief nurse of the unit.

Base Hospital No. 24 cost \$100,000, contributed by the citizens of New Orleans, and was stationed at Limoges, France. It was originally planned to provide 500 beds, but when the armistice was

signed, the hospital was caring for as many as 1,741 patients at a time. Its professional personnel included 24 officers, 150 enlisted men and 67 nurses. It left New Orleans under the command of Major Charles McBrayer, U. S. A., with Capt. B. B. Ballanfant, quartermaster. Its medical officers were: Major John B. Elliott, director and chief of the medical section; Major Urban Maes, chief of the surgical section; Capt. John A. Lanford, chief of laboratory; John Smyth, E. D. Fenner, Charles T. Chamberlain, J. T. Halsey, J. D. Weis, I. I. Lemann, Chaille Jamison, Charles Bahn, Harold Kearney, P. King Rand, Paul Lacroix, Muir Bradburn, John Dicks, Warren Scott, Charles K. Wall, E. R. Bowie, Alexander Ficklen; and two dentists, G. E. Sandoz and A. E. Meynier.

The Officers' School for Instruction in War Fractures and other War Wounds, and Collateral Information in Modern War Surgery was established by order of Surgeon General Gorgas, with headquarters at the Charity Hospital, New Orleans, under the direction of Dr. R. Matas, Major M. R. C.

Presentation of standardized surgical material and appliances, and the latest improvements and advances in surgical technic as then developed at the front opened up a large program. A syllabus of some 100 mimeographed pages was prepared and presented in a four weeks' session by Dr. Matas and the following faculty: Drs. F. W. Parham, Hermann B. Gessner, Isidore Cohn, Charles W. Duval, Henry Bayon, W. C. Smith, Amedee Granger, Paul McIlhenny, J. P. Lobenhoffer, Lucian H. Landry, Russell E. Stone, Simon Geismar, I. M. Gage and J. M. Singleton.

Laboratory courses, clinics, and lectures were held at the Charity Hospital, Medical School of Tulane University, and the Touro Infirmary. At the close of each session the attendance and grading of the officers were recorded and reported to the Surgeon General's office. The school continued for eight sessions, from November 5, 1917, to June 30, 1918; and during these eight sessions a total of 138 student officers were in attendance, of whom 11 were majors, 34 captains, 93 lieutenants, coming from 23 military posts in ten states.

The school in New Orleans was one of four similar organizations throughout the country, the others being located in Boston, New York and Chicago. New Orleans was selected as the southern center due to the advantages offered by the large mass of material at the Charity Hospital.

Many expressions of appreciation were received after the war from physicians who had attended the school, and Surgeon General Gorgas, through Colonel Moncrief, expressed his thanks and appreciation.

An interesting feature of the A. C. S. meeting was an exhibit on the activities of the medical profession of Louisiana as described above (1916-1918). It was planned by Dr. Matas, and was

held under the auspices of the Medical Library of Tulane, with Miss Marshall, librarian in charge, assisted by Miss Lillian Collens.

The exhibit included framed photographs of the following groups: (1) Executive committee of the General Medical Board of the Council of National Defense, F. F. Simpson, Victor C. Vaughn, W. H. Welch, W. J. Mayo, Gary Grayson, Surgeon General Braisted, Surgeon General Gorgas, Surgeon General Blue, and Franklin Martin; (2) faculty of the School for Intensive Training in Wounds, Fractures and other War Injuries at Charity Hospital, 1917-1918; (3) officer members of each of the school's eight classes; (4) personnel of Tulane Base Hospital No. 24; (5) original letters addressed to Dr. Matas, from King George V, Sir William Osler, Sir Watson Cheyne, Sir Alfred Pierce Gould, Sir D'Arcy Power, in appreciation of the Tulane Base Hospital which he had organized, and from Colonel M. H. Moncrief (representing the Surgeon General) in appreciation of the War School; all from Dr. Matas' collection, and in an excellent state of preservation.

The exhibit also included a large collection of official manuals, textbooks and other literature on the surgical and medical aspects of war, especially prepared for military surgeons of the American, British, French and German armies engaged in World War I, now a part of the College Library; newspaper clippings of 1917-1918, saved by Dr. Matas; and the syllabus used for instruction in fractures, war injuries and war surgery in the classes for intensive war training at Charity Hospital, 1917-1918, prepared by Dr. Matas, by order of the Surgeon General.

MIMS GAGE, M. D.

MERIT SYSTEM EXAMINATIONS

A new series of open competitive examinations for positions in the State Department of Public Welfare, State Board of Health and Department of Labor was announced today by Jack H. Foster, Merit System Supervisor.

A number of varied technical and specialist positions, offering opportunity for rapid advancement are to be filled by examinations which will be given by the Louisiana Merit System Council in the near future, according to Mr. Foster.

The announcement included the following positions and monthly salary ranges: Key punch operator, \$90-115; senior key punch operator, \$125-150; tabulating equipment operator, \$110-150; senior tabulating equipment operator, \$150-190; tabulating equipment supervisor, \$175-215; statistical clerk, \$130-175; statistician, \$160-200; senior statistician, \$200-250; research analyst, \$160-200; senior research analyst, \$200-250; chief of research and statistics, \$250-300; chief public health statistician, \$350-450; senior public health statistician, \$250-300; health records advisor, \$175-225; health records registrar, \$250-300.

It was pointed out by Mr. Foster that in some instances the entrance salaries will be higher than the minimum indicated above.

All qualified residents were urged by Mr. Foster to apply for entrance to the examination and gain a place on the job register.

Applications will be accepted from high school and college seniors, if otherwise qualified, subject to the successful completion of the required high school education prior to July 1, 1942, he said. Examinations will be given some time in May at various points in the state, to be determined later on the basis of the number of applications received. Application forms may be secured by writing the Merit System Supervisor, 631 Main street, Baton Rouge, or from any local United States Employment office, or from the office of any parish department of Public Welfare. Application for entrance to the examination must be made to the Merit System not later than May 5, 1942.

HEALTH OF NEW ORLEANS

The Bureau of the Census, U. S. Department of Commerce, has reported for the week closing March 14 out of the 173 deaths reported in the city, 112 were in the white race, 61 in the negro, and the 11 in infants. This was a very marked increase from the previous week when only 107 of the citizens of the city expired. The following week ending March 21, the number of deaths was still above the three-year average with 164 deaths recorded, divided 97 white, 67 negro, with 13 infants, 10 of whom were negro babies. The figures took a sharp decline the week ending March 28, when only 131 deaths took place in New Orleans. Of those dying 85 were white, 46 negro, and of the 12 infant deaths, contrary to the usual finding 10 were in white babies. For the first week in April, which ended on the fourth, 140 deaths were proportionately 90 white and 50 negro. Thirteen in infants under one year of age were divided about as equally between the two races as it is possible to divide an uneven number.

INFECTIOUS DISEASES IN LOUISIANA

The morbidity report of the Section of Epidemiology of the Louisiana State Board of Health shows that for the week ending March 14 syphilis customarily led all reportable diseases with 296 cases listed this particular week, 28 of which, however, arose in army camps. The very large number of gonorrhea cases that were reported were also due to the fact that 146 of these cases were reported from the army. There was an epidemic of measles throughout the state with 136 cases recorded, followed in proportion of frequency and numbers greater than 10 by the following diseases, pneumonia, 51 cases; mumps, 40; influenza, 27; chickenpox, 25; tuberculosis, 19; and whooping cough, 10. This latter does not represent the number of cases by any means, because it is impossible to conceive of nine of the ten cases coming from

one parish, that of Lafourche. Whooping cough was too prevalent and widespread a disease to be recorded solely in one section of the state. Evidently the doctors of Lafourche are more punctilious in reporting whooping cough than doctors elsewhere in Louisiana. For the week ending March 21, 428 cases of syphilis were followed in numerical degression by 188 of measles, 47 of gonorrhea, 36 of chickenpox, 35 of mumps, 30 each of pneumonia and pulmonary tuberculosis, 26 of whooping cough. Two cases of poliomyelitis were reported this week, one from Jefferson and one from Tensas parish. Whooping cough this week was scattered throughout the state, six parishes reporting having this disease among their children. For the week which came to a close March 28, there were listed 232 cases of syphilis, 133 of gonorrhea, 100 of measles, 37 of mumps, 27 of pulmonary tuberculosis, 23 of chickenpox, 22 of chancroid, 16 of pneumonia, and 10 of diphtheria. There were eight cases of typhus fever listed this week, seven of which came from Madison Parish. All the reportable diseases were materially increased in number by the cases coming from army camps.

The epidemic of measles was well on its way to a peak. For the week of April 4 there were more cases of measles reported than any of the other reportable disorders. Of the 292 cases of measles, 61 were in the army camps. Other diseases in figures greater than 10 included 141 cases of syphilis, 48 of mumps, 23 of gonorrhea, 22 of chickenpox, 17 of whooping cough, 15 of pneumonia, 14 of pulmonary tuberculosis. There were two additional cases of typhus fever reported from Madison Parish, and of the 17 cases of whooping cough 12 developed in St. Mary Parish. This latter parish might be compared favorably to Lafourche in attentiveness of physicians in their report of the cases.

DR. S. L. SHAW

1874-1941

At 8 o'clock on the morning of September 30, 1941, Dr. S. L. Shaw suddenly passed away at his home near Clinton. With medicine bag in hand he had started for his car but got only as far as the edge of the front porch when suddenly he dropped into a convenient chair, and was gone even before his nearby wife could reach him. Stricken falling in line of duty.

Dr. Shaw was born August 14, 1874, at Summer Hill, Illinois. He graduated in medicine (1909) from the St. Louis College of Physicians and Surgeons, St. Louis, Missouri. He began the practice of medicine in Clinton, La., in 1925, and was active in his profession up to his last moments. He had been president of the Bi-Parish Medical Society, and was the coroner of East Feliciana Parish at the time of his death.

It was a custom of Dr. Shaw and his lovely wife to entertain the Medical Society every year at the log cabin, near their home. Here they served a barbecue dinner, a real feast, and these occasions will never be forgotten by those persons who were present.

Dr. Shaw was a very unique and interesting personality, broad minded, kindhearted and charitable towards people of all classes, races and creeds. He kept posted in the progress of medicine. He rarely missed being present at the society meetings, and loved to take part in the discussion of the subjects presented. His ideas were good, and always expressed in clear concise language, right to the point. We shall miss him.

Therefore, be it resolved by the Society that we feel keenly the loss of this valuable member, our brother and friend.

Resolved further that we extend our sympathies to his bereaved wife, also to his son and daughter.

Resolved that a copy of this simple tribute be sent to his family; also to the local papers, and to the New Orleans Medical and Surgical Journal for publication.

E. M. ROBARDS, M. D.

E. M. TOLER, M. D.

W. J. ROBERTS, M. D.

BOOK REVIEWS

Diagnosis, Prevention and Treatment of Tropical Diseases. By E. R. Stitt, Rear Admiral, U. S. Navy. Rev., rewritten and ed. by Richard P. Strong. Philadelphia, Blakiston Company, 1942. Pp. 1,747. Price \$21.00.

This work might well be called a system of tropical medicine and hygiene. The modest volume hitherto known as Stitt's Tropical Diseases has become a two volume work, full of useful, well-sifted information. It should prove indispensable to physicians in the tropics, a valuable handbook to every practitioner in the medical field, and a useful work of reference for medical students. It appears most opportunely because it is quite obvious that physicians in the future will have to pay more attention to diseases of warm climates than at any time since the expansion of American interest brought about by the Spanish-American War. In the new volumes the public health aspects of diseases are given special emphasis.

It is difficult to restrict a work to diseases found only in warm climates, nor have the authors tried to do this.

Numerous distinguished authorities are mentioned from whom assistance was received in the preparation of the work. There are many new illustrations in the volumes as well as some reproductions. At the end of the various subjects will be found references that should prove most valuable.

Volume I is made up of: section I, dealing with protozoal diseases and section II, dealing with bacterial diseases.

Volume II is made up of six sections as follows: section III, filterable viruses, rickettsiae, and allied organisms; section IV, nutritional disorders; section V, diseases not otherwise classified. (Acute effects of heat, tropical ulcer, granuloma venereum, climatic bubo and a number of rare conditions or those of doubtful origin); section VI, fungi and poisonous plants; section VII, animal parasites,

including helminths, injurious arthropods, poisonous fish, snakes and coelenterates; section VIII, devoted to general and statistical information.

The appendix is divided into three sections: I, index of clinical signs; II, laboratory procedures indexed by disease; III, subdivided into: tropical hygiene, personal hygiene, disinfectants and disinfestants.

A few items of special interest are noted here: It is fitting that malaria, the most important of tropical diseases, occupies more space than any other subject — 135 pages. It is encouraging to learn that *Anopheles gambiae*, which was introduced into Brazil a few years ago is being held in check and there seems to be hope of eradication of this menacing carrier of malaria.

Pinta is looked upon as a treponema infection, in keeping with the recent views of certain Latin American workers, the organism being very similar to *Treponema pallidum*.

Carriers of *Endamoeba histolytica* are divided into: (a) contact (asymptomatic) and (b) convalescent (recovered), and the need of methods of distinguishing pathogenic and non-pathogenic ameba is mentioned.

Sulfanilyl-guanadine is especially recommended for the treatment of bacillary dysentery. Stress is laid on undulant fever as an occupational disease, occurring in shepherds, farmers, farm laborers, men employed in slaughter houses.

It is refreshing to find that the authors recognize that the focus of leprosy in Minnesota has become non-existent.

The chapter on yellow fever, prepared by A. W. Sellards, illustrates very well the stress laid on history, transmission, immunology and prophylaxis. Only eight of thirty-one pages are given over to clinical manifestations, symptoms, diagnosis, pathology and treatment.

Epidemic and endemic typhus are discussed under different headings which simplifies these sub-

jects from the viewpoints of transmission and prevention.

One is pleased to find a textbook which recognizes that the virus of Rocky Mountain spotted fever has thus far not been found in any rodent infected in nature, a contrary statement being the rule.

George C. Shattuck summarizes nutritional diseases. In the discussion of pellagra it is stated that "As late as 1930 some still believed pellagra to be an infectious disease." The prevalence of pellagra on a large scale is recognized as an economic problem as well as one due to the lack of education in the essentials of nutrition.

Tropical ulcer (tropical sloughing phagedena) is regarded as a clinical entity, ulcerations of known etiology having been excluded.

Under the title climatic bubo, the condition usually designated as lymphogranuloma inguinale and more recently often as lymphopathia venereum, is discussed with a full consideration of the Frei test, pointing out especially possible fallacies in the test.

The authors express very conservative views in relation to the use of biological products against certain bacterial diseases. They do not advocate vaccination against bacillary dysentery, and point out possible fallacies in the favorable reports on anti-cholera vaccination and are lukewarm in respect to anti-plague vaccination. Anti-dysenteric serum is regarded as of little value and the evidence with respect to the curative value or lack of value of anti-plague serum is set forth.

One turns with interest to controversial subjects on which the views of the authors are expressed: The evidence makes it clear that the disputed question as to whether malaria gives at times a positive serologic test for syphilis must be answered in the affirmative.

Stress is laid on the importance of quinine prophylaxis of malaria in military preventive medicine and it is emphasized that this treatment does not prevent infection, only the development of symptoms, and indeed that even in this it is not uniformly successful.

The question as to the relation between yaws and syphilis is considered conservatively with the conclusion that "Yaws is a modified virus of syphilis—a less virulent one, producing a disease which has been modified through many years of successive passage of the virus through the epidermis of black skinned races, by the habits of these people, and by the climatic and hygienic conditions under which they live."

Food handlers are regarded as of not much importance in the transmission of amebic dysentery—but it is urged that carriers of the infection should not be employed as food handlers until well treated. The identity of alastrim and smallpox is accepted without qualification.

Having mentioned with approval all of the foregoing, it may be appropriate to call attention to

a few features that may be the subjects of differences of opinion. In the discussion of plague Verbitski's work is not mentioned but there is a synopsis of much of the work of the Advisory Committee appointed by the Secretary of State for India, the Royal Society and the Lister Institute, generally referred to as the Indian Plague Commission.

The authors, together with many others, are more impressed with the similarity between tularemia and plague than is believed warranted. Under the discussion of the diagnosis of undulant fever, *Bacterium tularense* is stated to be much more closely allied to *Bacillus pestis* than to brucella; in fact it is not closely related to either. On page 1673 in the Index of Clinical Diagnosis we find the following: "Tularaemia is a plague like disease occurring in man following contact with rabbits or other rodents." Plague and tularemia in man have but little in common. The statement also omits sources of infection other than rabbits of which ticks and biting flies are important. The symptomatology of the two diseases is very different and the similarity from the gross pathology viewpoint relates only to certain laboratory animals—where of course, the resemblance almost defies differentiation.

The portions of the work dealing with the general aspects of tropical disease and disease prevention are notably good: In the section on Problems of Medical Practice in the Tropics certain general considerations are covered and the authors stress the cosmopolitan nature of many diseases seen in warm climates. This section has a discussion of anemia as well as of several other subjects that would be useful as part of a handbook of general medical practice.

In the appendix, under "Tropical Hygiene" will be found useful information on subjects running from "climate influence" to "control of native tropical races," and including such diverse subjects as laundering and vaccinations.

Viewed as a whole these volumes may be said to contain the most modern and comprehensive discussion of tropical medicine in English, with very little that may justly be criticized and much to be praised. Every special student of tropical diseases and every physician practicing in warm climates will feel indebted to Admiral Stitt and Dr. Strong.

G. W. McCoy, M. D.

Encephalitis, a Clinical Study: By Josephine B. Neal, A. B., M. D., Sc. D., F. A. C. P., and Collaborators. New York, Grune & Stratton, 1942. Pp. 563. Price \$6.75.

Epidemic encephalitis is a major neuropsychiatric problem. This disease was probably first recorded in its present epidemic form in Rumania in 1915. However, historical studies indicate that outbreaks of acute encephalitis have occurred throughout the centuries. It is believed that the

last epidemic may have been a product of the impact of the first World War, due perhaps to its depleting and nerve-wracking effects. If so, it is possible that the strain, privations and nutritional deficiencies engendered by the present war may prepare the way for another epidemic.

Under a grant from The William J. Matheson Commission for Encephalitis Research, Neal, with her distinguished collaborators, has made an exhaustive and comprehensive study of encephalitis since 1918. Neal is a brilliant scientist and a gifted writer, and the results of her studies are set forth in this colorful, practical, splendidly balanced and complete work, which abounds in fascinating detail, bears evidence of careful scholarship, and brings the knowledge of encephalitis quite up to date.

It is believed that the weight of opinion is against the possibility of direct relationship between influenza and epidemic encephalitis. Despite twenty-five years of intensive research no final conclusions have been reached in regard to a specific etiologic agent. But it has now been definitely ascertained that there are four types of encephalitis caused by viruses.

There is no unanimity of opinion as to any invariably efficacious plan of treatment. Since no causative factor has been found, the treatment of encephalitis is largely empiric.

It is not often that you see a better book than this, and one cannot review it without being aware of the fact that a new and ever widening era has opened in neuropsychiatry.

C. P. MAY, M. D.

Clinical Roentgenology of Pregnancy: By William Snow, M. D. Springfield, Illinois, Charles C. Thomas, 1942. Pp. 178 with 119 illustrations. Price, \$4.50.

This volume is intended as a working manual and a practical reference covering the methods of x-ray pelvimetry and cephalometry employed by the author at the Bronx Hospital and the Harlem Hospital, New York City. The subject matter has been divided into two parts: one, the study of the maternal pelvis and the fetus, and two, the study of the soft structures of pregnancy.

Chapter I consists of a general discussion of the use of the x-rays in pregnancy and includes brief discussions of various methods of pelvimetry and cephalometry employed at the present time. The principles of the author's method are also discussed. The advantages of obtaining the pelvic diameters in terms of linear measurements are considered briefly. The corrected lengths of the diameters are obtained by the use of a slide rule or by a graph devised by the author. The advantages claimed for this method are: (1) accuracy within 5 mm.; (2) rapidity of determining the entire set of measurements in a few minutes; (3) simplicity; and (4) linear measurements.

In Chapter II, the positioning of the patient and the technic of x-ray exposures are considered in detail. Chapter III includes a description of the necessary computations. The technic of measuring the fetal skull consists of a modification of the Ball method of determining the perimeter and of the McNeill method of obtaining the diameter of the fetal skull. By the use of a table or chart, it is then possible to obtain the approximate age and weight of the fetus.

Chapter IV is devoted to a consideration of the pelvic shape in relation to its measurements. The classification of Caldwell, Moloy, Swenson and their coworkers are discussed and an effort is made to classify pelvises based on measurements.

Chapter V considers the relationship of the normal and the abnormal fetus to the planes of the pelvis. Chapter VI is concerned with a discussion of the visualization of the soft tissues in pregnancy. Chapter VII consists of a series of twenty-two case reports with reproductions of roentgenograms in each case.

In general, this book is well written and beautifully illustrated. A short bibliography of the most important contributions to the subject and an index are included.

J. N. ANE, M. D.

Synopsis of Allergy: By H. L. Alexander, A. B., M. D. St. Louis, C. V. Mosby Co., 1941. Pp. 246. Price, \$3.00.

As indicated in the preface, the purpose of this book is to present the subject of allergy in present day thoughts. Dr. Alexander has succeeded admirably in carrying out his intention. This small volume is a compact but inclusive treatment of the subject. Atopy, hay fever, bronchial asthma, atopic rhinitis, allergic dermatoses, physical allergy, and bacterial allergy are among the subjects succinctly discussed. Much controversial matter has been omitted. There is also an appendix which contains formulae for various extracting fluids currently in vogue, directions for preparation of extracts, the various physical and chemical methods used to standardize extracts, as well as lists of household materials and foods, and the possible allergens which they may contain. The technics of skin testing are also described. An unusual and extremely useful feature of Dr. Alexander's book is the tabulations outlining desensitization schedules. This book is an excellent summary of present day allergic practice.

BERNARD G. EFRON, M. D.

Neuroanatomy: By Fred A. Mettler, A. M., M. D. Ph. D. St. Louis, The C. V. Mosby Company, 1942. Pp. 476, figs. 337. Price, \$7.50.

"The present text has been written to meet the needs of the medical student beginning instruction in neuroanatomy and to prepare him for the demands which will later be laid upon him in his clinical training." [From preface.] Opinions as

to how well that aim has been realized naturally will vary among those who teach neuroanatomy, and while it may be unfair to pass judgment at all without having first actually tried out the book on at least one class, its outstanding merits and apparent faults may be enumerated:

(1) Illustrations form an all-important feature of any anatomy text, since on so many points pictorial representation is more effective than words. The figures in Mettler are refreshingly new, beautifully executed and in the main well planned for their intended purpose. (2) Organization of subject matter is an especially critical element in the presentation of neuroanatomy, owing to the intricacy of factual material and the need of proper development of the background for correlation of structure and function. In its general outline this book has a logical organization, with the descriptions of gross anatomy preceding the treatment of minute structures and functional anatomy. Closer reading, however, discloses spots in which the planning may not be such as to lead the student through progressive steps into an appreciation of functional pathways. The lapses may be filled in by the instructor, of course, but it is unfortunate that discussions of functional pathways are so disjointed. (3) Rigorous selection of subject matter is necessary in a text for beginners, who are expected to gain working knowledge of neuroanatomy in a very brief period. The present text devotes much space to some matters of descriptive anatomy which have questionable place in an elementary text, and without indication of their relative unimportance. Except for this, the content of the book is distinctly practical. (4) The legitimate demands imposed on a medical student for the acquirement of an extensive and new vocabulary are already so great that he is in no position to tolerate extravagance in textbook terminology. The author appears to have overemphasized terminology. Even when the English form of a name has gained well-nigh universal use to the exclusion of its technical equivalent, both are listed and often together with some proper name which may have been long obsolete. Then again, in some instances where technical names have been long ingrained in usage, the author gives precedence to the unfamiliar English literal translation. Thus, for example, "slender fasciculus" is first used as the name of the fasciculus gracilis, the pons becomes "bridge," and so on. Why should the medical student be burdened with synonyms except in those instances where two or more names

for the same structure are in actual common use?
HAROLD CUMMINS, Ph. D.

A Textbook of Neuro-anatomy: By Albert Kuntz, Ph. D., M. D. Philadelphia, Lea & Febiger, 1942, Pp. 518, fig. 307. Price, \$6.00

First published in 1931, this text is already widely known as a sound work covering its field. The content and organization are indicated by the following sequence of chapter topics: Evolution and comparative anatomy; embryology; topography of the central nervous system; meninges and cerebrospinal fluid; interstitial tissue of the central nervous system; myelinization; nervous integration; cerebrospinal nerves; internal structure of spinal cord; spinal conduction pathways; medulla; pons; mesencephalon; long conduction pathways; central connections of nerves III-XII; cerebellum; visual apparatus; autonomic system; cerebral hemispheres, general morphology; olfactory apparatus; cerebral hemispheres, internal structure; cerebral cortex; functions of cerebral cortex; laboratory outline. For this revised edition the text has been partly rewritten and some of the original illustrations replaced by improved figures. The newly added material mainly concerns thalamic connections, the hypothalamic nuclei and details of the cerebral cortex.

HAROLD CUMMINS, Ph. D.

PUBLICATIONS RECEIVED

C. V. Mosby Company, St. Louis: Synopsis of the Preparation and Aftercare of Surgical Patients, by Hugh C. Ilgenfritz, A. B., M. D., and Rawley M. Penick, Jr., Ph. B., M. D., F. A. C. S., with foreword by Urban Maes, M. D., D. Sc., F. A. C. S.

Stanford University Press, Stanford University, California: Lane Medical Lectures: The Lymphatic System, by Cecil K. Drinker, M. D.

Lea & Febiger, Philadelphia: Endocrinology, by August A. Werner, M. D., F. A. C. P.

Grune & Stratton, New York: The Clinical Application of the Rorschach Test, by Ruth Bochner, M. A., and Florence Halpern, M. A. Nephritis, by Leopold Lichwitz, M. D.

The Commonwealth Fund, New York: Neural Mechanisms in Poliomyelitis, by Howard A. Howe, M. D., and David Bodian, Ph. D., M. D. Psychiatry in Medical Education, by Franklin G. Ebaugh, M. D., and Charles A. Rymer, M. D.

The Colt Press, Paterson, New Jersey: Medical State and National Board Summary, by William H. Kupper, M. D.

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PHYSICIAN AND SCIENTIST—1850*

ROBERT J. USHER

NEW ORLEANS

It has long been generally believed that there was little or no interest in science in the South in the period preceding the Civil War. The statement so often met with runs somewhat as follows: In the old South with its system of slave labor there was a predominant interest in agriculture. There was little need for science and technology. Cultured sons and daughters under this system were interested only in a classical education. The masses remained not highly educated. A distinguished Harvard historian wrote as recently as 1927, "The cultivation of cotton and the neglect of men had by 1850 killed practically every germ of creative thought."

In addition to many who have stressed the South's devotion to the classical tradition there is a small but vociferous group of recent origin who insist the South must and shall remain agrarian. Fortunately these latter voices are being drowned out by the hum of industry. We now know that this common belief is quite erroneous. The lives of such men as Joseph and John LeConte of Georgia, of the Ravenels of Charleston, of Dr. Joseph Jones of Georgia and Louisiana, of Matthew Maury of Virginia, of John Holbrook of South Carolina, of Gerard Troost of Tennessee, of Audubon of Louisiana and Rafinesque of Kentucky and of scores of other Southern scientists, go far toward refuting these mis-

leading statements. Even in the field of technology it should be remembered that the South made no small contributions, including some of the first railroads and steamboats. Cyrus McCormick's reaper came from Virginia, from which state also came numerous other important inventions.

The truth is that while the old South was by no means an outstanding leader in scientific progress, there were here, as elsewhere, numbers of persons genuinely interested in science. The proportionate number of such men was smaller in the South than elsewhere because public education under the conditions prevailing was never given the taxpayers' support it deserved.

This whole question of whether or not the pre-Civil War South had any interest in science was admirably treated in 1936 by Thomas Cary Johnson, Professor of History in the University of Virginia. Dr. Johnson in this work entitled "Scientific Interests in the Old South" once and for all gave an answer to those who have insisted that in the South of the past the classical tradition alone prevailed. No one has since risen in any serious attempt to assail Dr. Johnson's proofs.

What was true in the South generally was true in Louisiana and particularly in its largest city, New Orleans. When Dionysius Lardner, the Irish scientist, lectured in New Orleans in 1843 on physical and astronomical subjects he did not lack for an interested audience. When the great naturalist, Louis Agassiz, gave a series of popular lectures in the Lyceum Hall of this city in the summer of 1853 the New Orleans Medical and Surgical Journal said that

*Annual Oration read before the sixty-third annual meeting of the Louisiana State Medical Society, New Orleans, April 29, 1942.

there could not be complaint "that the money making, money spending, amusement seeking citizens of New Orleans do not appreciate him, seeing that among his auditors are not only hundreds of learned lawyers, physicians and teachers, but hundreds of merchants, and still other hundreds of the fair sex."

Similarly Benjamin Silliman, founder of the *American Journal of Science and Arts*, when he delivered here in 1845 his course of ten lectures on geology, had at least two or three hundred attentive listeners. His son, Benjamin, the eminent chemist, here at the same time, gave a course of lectures on agricultural chemistry, believed to have been the first series of lectures on the subject to be given anywhere in America.

Wherever any considerable number of people were living together there were likely to be scientific societies. New Orleans had its medical societies long before your organization came into being. I do not propose to go into a history of these medical societies (that will be done by Dr. Matas in good time in his forthcoming history of medicine in Louisiana), I simply call your attention to the fact that such societies existed, chiefly among the French speaking physicians of New Orleans, at a very early day. I call your attention in passing also to the fact that there was a Louisiana State Medical Society which immediately preceded your own and which existed from 1849 to 1855. I mention this fact especially because in 1878 when Dr. Stanford Chaillé wrote on the subject he said he had been unable to find anywhere in a Louisiana library a complete set of the five volumes of proceedings of this society, and he hinted that insult had been added to injury by the request of the Boston Medical Society for his assistance in completing the Massachusetts' library file. I think you will be interested to learn that through the magic of the microfilm we have today in the Tulane University Medical Library a complete file of those early reports and appropriately enough we got part of them from the Boston Medical Society.

Before leaving the matter of early scientific societies, mention should be made of the Physico-Medical Society of New Orleans founded in 1820 and the Louisiana Medico-Chirurgical Society organized in 1839. The very names of these two societies suggest one of the tendencies of that time—that is to admit to membership, at least as associates, men scientifically inclined who had not received a medical education. In both these organizations an associate member was known under the unusual name of "assessor." This meant not one who had something to do with the assessment of taxes but rather one who acted in an advisory capacity, lower in dignity and as an assistant. The Physico-Medical Society counted among its assessors some who professed little knowledge of science, among others the revered Rev. Theodore Clapp, long known for his spiritual ministrations to the distressed people of the city of New Orleans. The Medico-Chirurgical Society was less liberal in its provisions. Only an able chemist or pharmacologist could hope to become one of its assessors.

In the smaller cities of Louisiana there were in this period similar scientific organizations. In Baton Rouge there was in 1850 a Physico-Medical Society. Out in the Teche country, at Opelousas, there was in existence a Houma Scientific Association. In Shreveport there was in 1856 the Medical Association of North Louisiana and up at St. Francisville, as early as 1845, there was a West Feliciana Medical Society.

In New Orleans, in March, 1853, five physicians, Drs. Bennet Dowler, N. B. Benedict, Howard Smith, I. S. Copes and H. D. Baldwin, met together to consider an organization which should be mutually beneficial to medicine and to natural science. The result was the formal inauguration of the New Orleans Academy of Sciences which is this week holding its annual meeting, after having carried on for eighty-nine years. The records of this society, including some in manuscript, are kept in the custody of the Howard-Tilton Memorial Library of Tulane University. The early

archives of the society have interested me greatly and as I have studied them and the records of their deliberations, I have been impressed with the fact that here was gathered together a group of remarkable men. They found time to interest themselves in many forms of scientific progress and in many ways. Their records indicate that they evidently preferred discussions to the presentation of formal papers. They were not only abreast, but often far in advance of the time in which they lived.

These men carried out in their activities the tradition of that period which was that the medical man could not wholly limit himself to professional contacts and interests. He must have a broad-minded point of view toward sciences more or less related to medicine. When Dr. I. L. Crawcour addressed the young men of the New Orleans School of Medicine in 1858 he said, "As physicians you are the interpreters of nature, the expounders of all that surrounds you." This represents the professional attitude of the time. Nothing illustrates this tendency better than the files of medical journals of that period. In them you will find not merely records and discussions of cases dealing with medicine and surgery but likewise excellent articles on zoology, botany, chemistry, geology, anthropology, population and many other subjects. The New Orleans Medical and Surgical Journal announced in 1857 "that it proposed to collect from different sources a few observations on paleontology, geology and ethnology . . . hoping the critical reader will allow them to be mustered with the articles on the Progress of Medicine." Occasionally the Journal felt somewhat apologetic for its stand. Thus in 1856, to an article in which there appeared three or four pages of an historical character concerning the Indians of Texas, a footnote was appended which read "It is by no means essential to the purposes of the most intensely practical journal to fill its pages with tedious histories of cases *ad infinitum*. It is far better, more practical to induce men to think, to investigate, to discover and then to apply.

A writer, for instance, who describes the fauna, flora and diseases of Texas truly contributes to the treasury of science. To verify the identity, or the differentiae of a plant, reptile, or fever in a special district, as compared with other localities is to contribute to the progress of science even though no absolute novelty or discovery may be developed."

The quotations offer an explanation for inclusion in medical journals of that day of material which seems to us only remotely concerned with medical science.

I have referred to the local organizations of these scientists. They indicated their wider interest through membership in national organizations. Among early members of the American Medical Association which held its first meeting in New York in 1846 were the Louisiana doctors, John Harrison, William Carpenter and A. J. Wedderburn.

And as might be expected the American Association for the Advancement of Science, organized in 1848, numbered among its early members such Louisiana men as Dr. William Carpenter and Dr. John L. Riddell of New Orleans. In 1853 Dr. Riddell presented two papers before this society at its annual meeting in Cleveland.

They found time, also to contribute to well-known scientific journals. From Sicily Island, Dr. Clarendon Peck wrote observations on plants which were published in the Transylvania Journal of Medicine and Associated Sciences in 1835. Carpenter and Dowler contributed to the American Journal of Science and Arts. Riddell was early a contributor to the Western Journal of Medical and Physical Sciences of Cincinnati. Caleb Forshey's notes went to the Boston Society of Natural History while B. L. C. Wailles of Natchez was contributing to the Association of American Geologists and Naturalists.

These scientists of 1850 were interested in all sorts of things. Contrary to what Mark Twain is alleged to have said about the weather, these physicians really did something about it—at least they recorded

"*It.* Dr. Edward Barton, whose meteorological tables frequently appeared in the medical journals of New Orleans, said in 1853 that he had kept records of precipitation from the year 1825 on. Once he said it was his practice to make observations of the weather following methods adopted by scientific observers—at daybreak, 9 a. m., 3 p. m., and 9 p. m. Dr. S. B. North kept such records for Mobile from 1840 to 1848. Dr. Edward Merrill made observations at Trinity, near what is now Harrisonburg, Louisiana. Dr. Henry Tooley of Natchez kept perhaps the fullest and longest continued weather records for the Mississippi Valley, running uninterruptedly from 1825 to 1850. D. T. Lillie of New Orleans, connected with a house dealing in nautical charts, kept weather records which were published in the medical journals of the city for many years but Dr. Barton thought they were not entirely accurate.

These medical men were much interested also in zoology. The cold-blooded animals held for them a deadly fascination. Dr. Albert Welles Ely of this city, in 1851, wrote:

"A few mornings since we rose at 5 o'clock and took a long walk with a literary friend. Among other places we visited the old French Market where we had an opportunity of testing amid the confusion of that polyglot mart, the accuracy of the reflex theory of the neurologists. We saw in the fish market several large turtles, decapitated, the interior plates of their shells entirely removed. The hearts of all of them were fully exposed and particularly attracted our attention by their continued and regular beating. Their legs were continually in motion as if laboring to escape. Little did we think when we left our drowsy beds to inhale the morning air that we were about to hold a scientific consultation, before sunrise, over a collection of vivisections that would have made even Marshall Hall or Magendie forget their breakfasts and all their experiments. Shade of Aesculapius, what a sight! Seven fine turtles, emboweled and decapitated, and yet with

palpitating hearts and legs laboring to escape! What a pity that our friend Bennett Dowler is not here exclaimed my companion. Such would indeed have been a tempting sight to our distinguished Southern vivisector, for he would have seen before him seven palpable and palpitating demonstrations of the truth of his views regarding the reflex nonsense of the day. It was evident that muscular motions in all parts of the turtle's body were not dependent on the brain. We resorted to manipulations and found they behaved like turtles with heads. If we caught them by the feet they pulled away from us. Their perfect sensibility to external impressions made by us upon them could not be doubted."

For tireless Dr. Bennet Dowler, one of the most interesting of these pioneers, the alligator was the favored animal for experimentation. In 1846 he wrote a very complete treatise on the natural history of this saurian. From 1849 to 1860 he was experimenting to prove that the brain was not the sole source of directed action of this animal. He held that automatic muscular action was due not to impulses set up in the brain but rather that it originated in nerve centers. In this opinion he is believed to have antedated the renowned Brown-Séquard. He also made experiments on the digestive powers of the alligator, the details of which I shall spare you. They would not be appropriate for an after-dinner occasion such is this. Suffice it to say, Dr. Dowler left nothing to the imagination. He insisted upon knowing the whole truth of the matter without squeamishness.

This hardy doctor was also much interested in mosquitoes. He wrote, in 1856, for one of the medical journals, a scholarly treatise on these insects which told practically everything known about them and barely missed the fact that the mosquito is a carrier in the spread of yellow fever. He said that as early as 1843 he had published the fact that mosquito bites were used as indicants of the actual or hemorrhagic stage of yellow fever.

How these medical men of the 50's strove

to find the cause of yellow fever! I assure you the literature representing their researches on the subject would make an impressive library. And how very near to the truth they came; Dr. Josiah Nott of Mobile, in 1848, had come out in favor of the animalcular hypothesis as the cause of yellow fever and Richard Henry Wilde of New Orleans, best remembered as a poet, had referred to it in a discussion with Sir Charles Lyell when he was here in 1846.

These men had a passion for geology and paleontology also. The New Orleans Academy of Sciences in the late 50's was urging the establishment of a State Geological and Agricultural Survey. Members, usually physicians, wrote endless letters to other physicians in all parts of the state urging them to publish in their local newspapers memorials requesting the Legislature to establish such a state survey. While their suggestions were not immediately adopted by a majority, their plans were carried out in the first geological survey which was made in 1869.

There were a number of these physicians interested in botany, notably Dr. Josiah Hale who published numerous contributions to journals which he usually dignified as medical botany. But occasionally he broke away and became purely a botanist, giving the impression that this was what he really wanted most to do. Dr. Hale also had an interest in physics. In 1846 he published an article in which he suggested that the atom was composed of still smaller particles held together by lines of force—an idea that was long in advance of the present-day conception of matter. Dr. Hale did not know the term electron but he came close to describing the characteristics of the force which we describe under that name.

Sometimes these men discussed aeronautics. Mr. Caleb Forshey (not a physician, but a brilliant scientist who came from Natchez to New Orleans) reported to the New Orleans Academy of Sciences in 1853 that one day near Carrollton he had seen a flock of buzzards rise to a height of two miles, with great velocity and with no ap-

parent movement of wings. He concluded that a column of air rushing upward had carried the birds up with it. Now we know that he was absolutely right in his surmise but this was rather an early day in which to be talking about the soaring flight of birds. It was not until 1893 that Otto Lillenthal began in Germany his famous experiments with gliders in which he lost his life. I have wondered if Caleb Forshey could possibly have guessed that by 1942 whole armies would be moved into position through the use of this principle?

One evening in May, 1847, Dr. John Riddell, who usually talked about the compound microscope he had invented, delivered a lecture at the Peoples Lyceum which he called "Orrin Lindsay's Plan of Aerial Navigation With a Narrative of His Explorations in the Higher Regions of the Atmosphere and His Wonderful Voyage Round the Moon." His admirers thought so well of it they had it printed. Now to be sure there were fanciful elements in this imaginative craft of Dr. Riddell's. His airship was a magnetic balloon constructed of a metal which had the curious property of not being affected by the law of gravitation. Ridiculous, we think at once, until we remember that yesterday's airplanes were built of aluminum and tomorrow's will be built of magnesium and those of a distant day will be built of still lighter material that may almost float in the air. Once we are inside Orrin Lindsay's balloon, however, we are hearing very familiar conversation. There is discussion of the ship's oxygen tank to supply pure air. There are questions of extreme cold in the rarefied atmosphere and whether or not there will be danger of colliding at terrific speed with small particles of meteorites—exactly the sort of discussion one would find today in any treatise on stratosphere flying.

Dr. Edward J. Coxe of this city in 1854 wrote about cotton-seed oil, then largely being wasted and then selling at \$1.00 a barrel. He said that \$38,000,000 a year was being thrown away that might be converted into edible oil and candles and soap. If

Dr. Coxe could know that today the cotton-seed oil industry in the United States alone produces products valued at over \$250,000,000 a year he would have the satisfaction of knowing that shrewd business men had taken his statements seriously.

And sometimes these wise scientists of old talked about air-conditioning (I know you will find it difficult to believe this—but it is true). Exactly one hundred years ago, in 1842, there appeared in this city, in the *Southern Quarterly Review*, a remarkable article embodying two lectures which had been made, one in 1835, one in 1837, before the students of the Medical College of Louisiana, by Dr. Edward Barton, in which he seriously proposed air-conditioning the city of New Orleans. Dr. Barton knew and stated at how great a disadvantage economically and hygienically were New Orleans and other Southern cities because of the trying heat in summer. He said it was unnecessary — that the city's buildings and even its streets up to a height of 30 feet or more could be kept all summer long at a temperature of 75°. How did he propose to do it? Not with ice—he said that would be far too expensive. No, he proposed to make use of natural laws of physics. He said that evaporation was the first and most obvious source of artificial refrigeration. He suggested the rarefaction and distribution of atmospheric air previously deprived of large portions of latent heat by mechanical condensation. Large reservoirs in the suburbs would contain the compressed and cooled air which would be released in houses and even in streets and open squares.

He had even an answer for those who would say that currents of air would carry away the released cold air. He said that in every Southern city there were vast pockets of air which summer winds never very materially affected.

I asked my friend, Dr. D. S. Elliott, head of the Physics Department of Tulane University, to tell me what is wrong with Dr. Barton's proposal. He tells me that from the standpoint of physician and physiolo-

gist, Dr. Barton was eminently correct and that he was right in his physical calculations so far as knowledge was then available. It was only a year later, 1843, that Joule made clear that heat is a form of energy. Up to them, heat "caloric," as they called it, was something in the nature of an elastic fluid capable of compression. Therefore, Dr. Barton's calculations for cost and horsepower are inaccurate. The fact remains that there are today in New York City corporations which supply to buildings from a distance heat or refrigeration, as required. Before 2052 arrives the doctor's dream of air-conditioned streets may be realized. Of course, it may cost more than the doctor calculated. He thought \$8.33 per building per year would be about right!

Yes, these physicians and scientists were interested in a multitude of facts. In the spring of 1854 an artesian well was being drilled on Canal Street at the corner of Dauphine. The members of the New Orleans Academy requested and got specimens of the borings foot by foot and they prepared a chart illustrating their findings. Well water always interested them. They were frequently called upon to make analyses.

A railroad was being built north. They requested and got the elevations above sea level of all the towns between New Orleans and Canton, Mississippi.

And of course, they introduced at their meetings an interesting variety of discussion of medical subjects. One evening in April 1854 they considered at great length the question of the absence of iodine in water supply as a factor in causing goiter. They were evidently quite familiar with European thought on the subject although only two years had passed since Chatin had first pointed out that goiter is prevalent where the quantity of iodine in drinking water is low.

Once, in 1854, Dr. I. L. Crawcour, the Academy's hard-working secretary, demonstrated the effect of a continuous current of galvanism to the skin. And a week later he was presenting a paper on "Diet and its

Influence in the Prevention and Cure of Diseases.”

These men were generous with their time and energy. They sustained the reputation of New Orleans for hospitality. When the eminent English geologist Sir Charles Lyell came to the city, Dr. William Carpenter took time from his medical practice to show the visitor Lake Pontchartrain and went with him down to the Mississippi to see the banks formed by sand, mud and drift wood. Dr. Charles Luzenberg showed the distinguished scientist his museum of natural history attached to his private hospital out on Elysian Fields in which, among other things, he had some unclassified snakes and grasshoppers.

When the Honorable Amelia Murray came here in the 50's (she had been a maid-of-honor to Queen Victoria and she had a knowledge of botany) Dr. Riddell dutifully went with her on a botanizing expedition up into Mississippi where she gave an Indian name to the town of Chatawa.

When Dr. Marshall Hall, the distinguished London physiologist, came to New Orleans from Cuba in 1854 he was welcomed by the New Orleans Academy of Sciences and as a special mark of appreciation was asked to dissect a small alligator before a highly interested group.

They sent specimens of scientific interest to various museums and especially to the newly founded Smithsonian Institute in Washington—three living turtles, skins of animals, a keg of serpents and other gifts from New Orleans and from St. Charles College in Grand Coteau were sent coleopterous insects, birds and reptiles.

The men were generous with their time, with their gifts and with such means as they had. Few of them attained any considerable degree of wealth. For the most part they had little more than ideas and courage of their convictions. The story of the founding of the New Orleans Medical and Surgical Journal which has continued publication since 1844 is, I am sure, familiar to you. The two founders, Drs. Eras-

mus Fenner and Abner Hester, years later said they were fortunate in being able to borrow for this venture \$11.00 which they used to issue a prospectus and they were again fortunate in finding a French printer who was out of a job and “who had a pocket full of type.”

But you may very well be saying, suppose it is true that these men of 1850 engaged in all sorts of scientific activities and showed unusual curiosity in all that was going on around them—what does it matter—what significance to us is there in all this? Thus, I say, by their actions they established firmly the traditions which have been so ably carried on by the members of your society as their successors for the past sixty-six years. These scientists were looking far into the future and to the assurance of better living conditions for those who were to come after them. They were not mere sensation seekers with time heavy on their hands who were following the trend of the times. They were genuinely interested in everything that held a hope for better conditions. We may smile at what seems to us inordinate curiosity and over-zealousness in the cause of science but we cannot doubt their sincerity and their genuine desire to improve conditions.

It must be remembered these pioneers had lived, such of them as had survived, through terrible conditions. Year after year they had seen epidemics of yellow fever, of cholera and of plague. They had seen the city's population cut down by typhus and typhoid fever. They lived in a city incredibly filthy for want of proper sanitary conditions. In the report of the Sanitary Commission of 1853, Dr. Edward Barton said, “New Orleans is one of the dirtiest, and with other conjoint causes, is consequently the sickliest city in the Union and scarcely anything has been done to remedy it. In no part of the world is a thorough sanitary reform so much needed as in New Orleans. In no country on earth has a place been so much injured through a want of insight into her sanitary condition by her

municipal officials." Dr. Barton was one who had lived through the year 1825 when he said he saw literally hundreds of horses, unable to extricate themselves, dead in the mud of Camp and Tchoupitoulas Streets.

Moreover they lived in a wicked and sinful city, where gambling and vice flourished and general laxity of morals was all too common. Within a few blocks of where these scientific gentlemen were holding their meetings was the notorious "Swamp," a district in which it is said murders occurred almost nightly and into which no police so much as ventured to correct conditions. But none of these things meant very much in the lives of those serious students except in so far as they might be called in to minister to those whose indiscretions had led them into trouble.

They lived in a period when hot blood flowed and resentments led to duels, but the record shows that physicians were seldom principals. True they had their honest differences and there was professional jealousy but they settled their quarrels usually without resorting to the sword. The celebrated instance of a serious scientific quarrel comes to mind which occurred when Thomassy, brilliant French geologist, provincial to a fault, who could find no virtue in things American, one day said, "Bah' the Mississippi River. It should be made to flow straight and kept within its banks, or else should be dammed up." And a Creole gentleman replied, "That shows how little you know of our mighty Mississippi." Said Thomassy, "In Europe we have rivers beside which the Mississippi is a mere brook." "I will not hear the river's name defamed," said the Creole and he slapped Thomassy across the mouth with his glove. At the duel next morning, under the oaks, the Creole gentleman drew first blood. But Thomassy, still provincial, said, "But for the miserable American steel in my sword which bent like lead, I should have run you through." Fortunately for him this time there was no one to accept the challenge for American steel.

You may wonder that these physicians

could find time to be interested in so many other sciences. Today it would be impossible. Life has become increasingly complex. There are societies national, state, sectional and local in all fields of endeavor. Publications without number pour from the presses. Out of curiosity I recently asked a number of my physician friends in how many medical societies they hold memberships. One said five, another six, a third eleven and still another thirty-nine. Suppose we say that five or six is average. If you attend meetings of that many medical societies, general and special, read the proceedings of their meetings and follow the periodicals which are their designated official journals, you are not going to have a great deal of time for cognate sciences.

Moreover, it is not necessary. Fortunately for you, you do not have to get up at dawn to make meteorological observations. The United States Weather Bureau is doing that work very satisfactorily. You do not have to be much concerned with geology, paleontology, chemistry and physics. There are flourishing organizations to look after the developments of those sciences. The engineers are successfully looking after the city's paving, drainage and water supply. But that was not true in 1850. Then there were just a few scientists here and there. But there were always physicians and surgeons in every community. *They* were the men who fostered every scientific advance. *They* were the men who got behind every movement which would mean better things for the city. They insisted on the Quarantine Act and the establishment of the Board of Health and when these offices were destroyed by selfish and short-sighted business men, the physicians insisted upon their restoration. It was the work of the Sanitary Commission, chiefly composed of physicians, which pointed the way to better paving, an adequate and pure water supply and the elimination of open sewers. It was not done immediately but they had shown what had to be done. It was the work of Drs. Luzenberg, Stone, Cenas and their associates which led to the foundation of the

Medical College of Louisiana which developed into Tulane University. It was the insistence of the physicians and scientists which brought about the geological surveys.

We pay great tribute to our forefather pioneers, who cleared the wilderness, harnessed the rivers, banished the savage and made the desert bloom. We raise a monument to the pioneer mother, the woman with a lantern in her hand, and we do so very justly. But I think we sometimes forget how much we owe in our everyday living comforts and conveniences to the pioneer scientist. Consider for a moment the burden these men carried for us. They were by their actions and in their associations—in embryo, if you please, the United States Weather Bureau, the State Geological Survey, the Sewerage and Water Board, the Board of Health and the Louisiana Conservation Commission. Is it any wonder that with these responsibilities and living as they did in a notoriously unhealthful city many of them went early in life to their graves? So I say all honor to those hardy pioneer physicians and scientists of old New Orleans—to Bennet Dowler, Erasmus Fenner, Josiah Hale, Warren Stone, Gustavus Nott, Thomas Hunt, Abner Hester, Jean Charles Faget, to William Carpenter and to many, many others whose work was less spectacular but nevertheless important.

It is appropriate that we should pause now and then to remember the lives of these men with gratitude. It is especially appropriate that we should recall them in this place for the ground on which this hotel stands is very near that on which stood the buildings of the University of Louisiana, later Tulane, where these scientists were accustomed to meet and hold their discussions.

Tonight we gather here in a comfortably cooled, air-conditioned room like one envisioned by Dr. Edward Barton in 1835. We ride home, if we are fortunate, in cars which operate because of the work of pioneer geologists and chemists. We ride over streets that are reasonably well paved. The miasmatic swamps have been drained.

We enjoy the conveniences of natural gas and petroleum and have available quantities of remarkably pure water even though it still comes from the Mississippi River. Yellow fever and other diseases that gave to New Orleans the dread name of "The Wet Grave" are fortunately largely unhappy memories.

I have owed much in what I have said to you to the work of other writers. To no one am I more indebted than to Dr. Thomas Cary Johnson, whose work I have mentioned. I cannot do better, in closing than to quote from his book a paragraph in which he describes these valiant scientific men of this city. He says: "They were an inquisitive lot, those scientific gentlemen of old New Orleans. Neither human corpses nor alligators' stomachs were safe from their prying curiosity . . . With eager eyes they scrutinized the excrement of cholera patients and the sputum of consumptives. They attempted to measure the rate at which the ground on which they stood had been brought from the interior of the continent and deposited by the Mississippi. Some of them were charlatans, perhaps, but even the charlatans were brilliant and were animated by a genuine desire for scientific discovery. All of them saw themselves and their works in a purple haze. They were glamorous figures and they got the most amazing kick out of life."

CHARITY HOSPITAL AND MEDICAL EDUCATION

LAURENCE BERTRAM WEISS, M. D.†
NEW ORLEANS

One of the largest general hospitals in this country is the Charity Hospital of Louisiana, located in New Orleans. This 3,000 bed institution is one of the nation's oldest hospitals and possesses a long and interesting history extending over two hundred years. For more than a century it has been the dominant influence in directing and advancing medical education in the South.

†From the Resident Staff of Touro Infirmary, New Orleans.

The following account purports to outline briefly the story of Charity Hospital and its role in the training of physicians.

In 1736, Jean Louis,¹ a sailor who had settled in the French colony of Louisiana, bequeathed the major portion of his wealth to found a hospital for the poor of Nouvelle Orleans. "L'hôpital des pauvres de la charité" served both as a hospital and an asylum for the indigent poor until a hurricane destroyed it in 1779. A new twenty-four bed hospital was soon built with a donation of \$114,000 by Don Andres de Almonaster y Roxas. Six years after the Louisiana Purchase, a city-wide conflagration reduced this structure to ashes. In 1811 the Legislature provided for a new hospital of 120 beds which, when completed, was the largest hospital in the country at that time. With the steady increasing population, this institution soon became inadequate. In 1830 the buildings were sold, and with the proceeds, the present site of the Charity Hospital was purchased.

Winter of 1833 saw the completion of that Charity Hospital which for one hundred and three years was to be famous throughout the world for its extensive medical services and its educational facilities. The management of the hospital was entrusted to the Sisters of Charity of St. Vincent de Paul, and to this very day they continue to devote themselves unselfishly to this service.

From the very beginning the facilities of Charity Hospital included provisions for the teaching of medical students. In addition to wards which accommodated 500 patients, the hospital possessed a library and a lecture room. In 1835 when the Medical College of Louisiana (now Tulane School of Medicine) was founded, its faculty could make use of the hospital for teaching. One of the facilities available was a Dead House which was "well supplied with light, air and water, good tables and benches; it is altogether admirably adapted to the purposes for which it was designed. It is doubted whether any city in the world presents so pleasant and convenient a place for the study of Anatomy, as this Dead House. Well lighted, well

ventilated, a hydrant of clear gushing water and plenty of fresh subjects—what more could be desired."² In the early days of the hospital, operations were performed in the wards. Later an amphitheater was added which provided better facilities for students to witness surgical procedures.³

An interesting though verbose picturization of the Charity Hospital is recorded in Harper's Weekly⁴ of September 3, 1859:

"The New Orleans Charity Hospital is one of the most celebrated institutions of its kind in the United States. Not only so, but in the liberality of its support, the commodiousness of its buildings, the systematic excellency of its curative arrangements, the number of its beneficiaries, the superior skill of its attending physicians, the admirable neatness of its domestic appliances, and the impartial catholicity of its administration, it will compare favorably with the older and more renowned establishments of England and the Continent . . . Nor is it amiss to say that, whether regard be had to the ability of the Professors or to the admirable advantages offered to the pupil, there is no better place in the country than New Orleans for young men who are studying to enter the Medical profession . . .

"Here you will find every type of disease and every gradation of bodily injury, from the simple cold to the malignant vomito, and from spraining of a finger to the compound comminuted fracture of the thigh-bone. Not less than *four hundred* diseases are mustered in their catalogue, each of which has its annual representatives—diseases whose formidable investiture of unpronounceable names would test the lingual lubricity of an unfledged Oxonian; and whose unimagined pangs come little short of the fabled torments of damned ghosts beyond the River Periphlegethon in the Grecian Orcus . . .

"One of the most notable parts of the establishment is the Dead House into which at night are carried the stiff, white, ghastly, staring corpses of those Charity patients who die during the day. Could the forgotten wretches who are dragged in hither during the year start up at the call of some

SEPTEMBER 3, 1859.]

HARPER'S WEEKLY.

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THE AMPHITHEATRE.

A CADET HOP AT WEST POINT.

We engrave herewith a Cadet Hop at West Point—a scene familiar to the happy people who spend summer days at Coxsack's at West Point.

During the summer—that is to say, from 17th June to 29th August of each year—West Point camps out and learns its trade. The boys are taught to sleep under the canopy of heaven, to dispense with all the luxuries and comforts of civilization, and to accustom themselves to the privations of actual warfare. The strictness of West Point discipline has long been proverbial; during "the encampment" it is severe indeed.

Happily the rigors of military etiquette are mitigated thrice a week by balls or hops, which are given by the cadets to their friends and the guests at Coxsack's and elsewhere in the neighborhood. These gay parties are justly famed among the fair sex; for better or more indefatigable dancers than the cadets are not to be found even in New York. Pretty girls who go to West Point to spend a few days in the bracing air, and enjoy the lovely Hudson scenery, invariably declare that they never enjoyed any ball in their life so much as the Cadet Hop.

The following gentlemen are the managers of the hops, and to them our artist desires to return thanks for the attention paid him on his professional visit:

CADETS.

Nichols Bowen, John E. B. Bartwell, Frank Huger, Wes. G. Jones, Josiah H. Kellogg, Wesley Merritt, Horace Porter, S. Dutton Hancock, John Alder, Jun., Adolbert Ames, Nathaniel R. Chambliss, Campbell C. Emory, Charles E. Haskett, Charles M. F. Lester, Henry W. Hingebury.

THE NEW ORLEANS CHARITY HOSPITAL.

This city of New Orleans claims a proud pre-eminence in her benevolent institutions, and in none is she more honorably represented than in the noble hospital which we have the pleasure of engraving herewith.

The New Orleans Charity Hospital is one of the most celebrated institutions of its kind in the United States. Not only so, but in the liberality of its support, the cosmopolitanism of its buildings, the systematic excellency of its curative arrangements, the number of its beneficiaries, the superior skill of its attending physicians, the admirable neatness of its domestic appliances, and the impartial cordiality of its administration, it will compare favorably with the older and more renowned establishments of England and the Continent.

The hospital is located on Common Street, immediately contiguous to the medical colleges of the city. This statement will indicate the superior facilities enjoyed by these institutions for affording to their pupils daily the most interesting practical exemplifications of the theoretical teachings of the lecture room. Nor is it amiss to say, that whether regard be had to the ability of the Professors or to the admirable advantages offered to the pupil, there is no better place in this country than New Orleans for young men who are studying to enter the Medical profession.

The external aspect of the hospital is rather imposing. Entering by the main door-way, and looking to the right, your eye at once rests upon a most marble tablet, embedded in the wall, bearing the following legend:

THE CHARITY HOSPITAL OF NEW ORLEANS WAS FOUNDED IN THE YEAR 1822, BY DON ANDRÉ ALMONASTER V. BOZAR, TO WHOM SUCCESSOR ENDOWMENT, THE BENEFICENCE

OF THE LEGISLATURE OF THIS STATE, AND THE LIBERITY OF THE STATE OF PENNSYLVANIA, THE COMMUNITY IS OBLIGED FOR THE MEANS OF ERIGING THE HOSPITAL, BEING

IN THE YEAR 1823, HIS EXCELLENCY A. B. REMAINE BEING GOVERNOR AND FLORENCE FLEMMING BEING GOVERNOR, TO RECOVER WAGES AND SAVING HERON THE HANDED AND CONTRIBUTIONS OF ITS DISTINGUISHED

BENEFACTORS, THIS TABLE HAS BEEN ERECTED.
FREDERICK POSE..... \$1,000
ROBERT CANDE..... \$1,000
JULIEN FORTUNA (Wife)
Estate bequeathed: \$55,000
—donated—

A glance at the engraving shows the principal building to be three stories high. This part of the establishment is devoted to the care of the thousands who annually seek, in this charitable refuge, alleviation for the countless ills that afflict our frail



THE WARD.



THE NEW ORLEANS CHARITY HOSPITAL.

Fig. 1. The amphitheatre, wards and exterior of the Charity Hospital as they appeared in 1859.

potent incantation a pallid host would they be, more terrible in their grim silence than army with banners. Here they lie, rotting with syphilis and bloated with dropsy; eaten by horrid cancers and fetid with disgusting ulcers; locked in the awful rigidity of tetanic spasms, or limp in the serene composure of an easy sleep; misshapen with ugly tumors, and distorted by the sharp pangs of rheumatic disorders. Here may you look in upon them, by the sickly glare of the early gas light, lying together, from the beardless boy to the man of old—'crooked-backed, tooth shaken, and blear-eyed.' As we walked through the dismal charnel-house, nervously clutching the arm of our accomplished cicerone, Dr. ———, of the University of Louisiana, imagine our horror to see him seize an idle brush, and, with artistic twirl, slap a cross-mark upon the bare breast of a lately expired wretch, exclaiming with the gusto of a connoisseur in dead flesh. 'This is mine.' Our friend, you should know, is one of the anatomical demonstrators in the University and from these dead bodies it is that they select their subjects for dissection. Not less than 150 are sawed and slashed up in his medical school in one season—so he told us.

"We send you a sketch of the Amphitheatre where, on each Wednesday the professors of the Medical Schools hold their clinics. One of the most exciting spectacles to be witnessed in the institution is seen when fifty or a hundred students crowd the couch of some patient who is about to undergo an important surgical operation. The trembling expectancy of the terrified subject; the nervous pallor of the medical tyros, who are about to see a man's leg or arm whipped off for the first time; the careless nonchalance of the hospital *habitués*; the giant form of that veteran man of the knife, Dr. Stone, as with cuffs thrown back, eye all ablaze, and lips firmly clinched, he prepared to make the adroit thrust; the quick prefatory whirl of the well-grasped blade; the sudden flash of the polished steel; the dull, muffled sound of the yielding flesh, the spurt of the blood, the scrape of the keen edge upon the solid

bone, the sharp cry of the patient, followed by the heavy moan of pain—these are the outline of a picture that thrills and terrifies the uninitiated beholder."

During the Civil War and reconstruction days the hospital experienced desolation and poverty. Often the hospital was filled with malingerers who feigned illness because of their need for lodging. Conditions improved gradually. In 1879 needed repairs were made and essential materials purchased, and soon Charity Hospital was better equipped than at any time previously. In 1884 a morgue was constructed which also provided a Pathological Laboratory and Museum of Pathology. The next year the ambulance service was established, and in the following year Listerian measures were introduced in the obstetrical and surgical services. In 1895 a spacious surgical amphitheater replaced the old one, where surgical operations frequently had followed autopsies on the same table. To provide for the rapidly growing institution many additional buildings were erected in the years that followed.

When the main building of the Charity Hospital was one hundred years old in 1933, the occasion was appropriately observed. The facilities at Charity Hospital were then clearly outmoded and inadequate. In 1936, with the aid of a Federal Government grant, appropriations were made for a magnificent, new twenty-story building which was completed and occupied early in 1940.

MEDICAL CARE AT CHARITY HOSPITAL

During the two hundred years of the hospital's existence the patients were first under the care of slaves, then medical students, and finally interns—at all times under the supervision of visiting physicians and surgeons. When the Medical College of Louisiana (Tulane) opened in 1835 the care of the sick, previously in the hands of slaves, was entrusted to six medical students who, during their school term and in exchange for board and lodging, assisted the House Surgeon and also carried out minor surgical procedures. At the end of the school term only a few of these students could be induced to remain because of the

prevalence of yellow fever in the summer.² In later years these "resident students" served two years and were selected by competitive examinations from the medical students who had completed one year of study. Their duties now required them to accompany "the visiting physicians in their daily ward rounds, to write prescriptions, attend to the exhibition of medicines, supervise the nurses, watch the patients and carefully follow out all instructions of the attending physicians to the minutest details."⁵ Later, the answering of ambulance calls became an added duty. Excellence in the service was encouraged by yearly examinations and the granting of awards to those who ranked highest.

At the turn of the century, resident students were required to have completed three sessions of the medical course before they became eligible for the position. In 1911 it was recommended that the applicants be graduates of an approved medical school, and thereafter the resident students were designated "interns."

For several years after 1891 the hospital also employed beginning students to serve as "externs," who assisted in the outpatient clinics and in the pathologic department.

A profound change in the administrative personnel was made in 1912 subsequent to an expert investigation conducted by Dr. S. S. Goldwater. In addition to the office of superintendent, there were instituted the positions of resident house officers: two in surgery, one in medicine, and one in gynecology and obstetrics. These house officers were selected from graduates who had served a two year internship at Charity Hospital. They devoted their full time to the hospital, supervising the interns and administering to emergency cases. The Goldwater report also outlined in detail the duties of interns. Fellowships in certain specialties were established in 1928, and selections for these positions were made from the interns who had served one year.

At present, all ward and clinic services of the hospital are assigned under the unit system, 40 per cent to Tulane University, 40 per cent to Louisiana State University,

and 20 per cent to physicians and surgeons who have no teaching affiliations. The clinical faculties of the two medical schools and the independent physicians are responsible for the training of the first and second year interns and residents who are assigned to their respective services. By means of a planned program of specialized training extending over several years, the hospital staffs prepare residents for certification by the various medical specialty boards.

MEDICAL EDUCATION AT CHARITY HOSPITAL

With the vast storehouse of clinical material available at the New Orleans Charity Hospital, it was inevitable that groups of physicians should make use of this material for medical education. No sooner had the main building been completed in 1833, than a medical school made use of its facilities. Since then numerous other groups, either in opposition or in collaboration with previously existing medical educational groups, have attempted to found undergraduate and graduate medical schools. These attempts, abortive though they may have been, resulted in the establishment of two definitive medical institutions, which now exist within Charity Hospital. These are the medical schools of Tulane and Louisiana State University. Outstanding among the short-lived group of medical institutions associated with Charity Hospital and deserving of more than passing mention is the New Orleans School of Medicine (1856-1870), which but for the Civil War might well have continued as one of the outstanding national medical centers.

SCHOOL OF MEDICINE OF THE TULANE UNIVERSITY OF LOUISIANA

In 1834 the first medical school in New Orleans, the Medical College of Louisiana,⁶ came into existence, organized by a group of young English speaking physicians who had recently arrived in the former French colony. Soon after the plans for this school had been announced, the older French physicians, resenting the encroachment of these new arrivals, organized an opposition school, the Medical College of New Orleans, which, however, failed to materialize. The first session of the Medical College of Loui-

siana began January 5, 1835, with eleven students enrolled. The medical course consisted of two annual sessions for four months each. At first the lectures were given in the homes of the professors, and demonstrations at the bedside were conducted in the wards of Charity Hospital.

Rivalry and jealousy prevented the school from prospering during the early years of its life. In spite of this the school's value was recognized by the state authorities. They encouraged the faculty materially, supplying a building for the school and in return the faculty provided medical care for the sick at Charity Hospital. When the independent physicians of New Orleans learned of this arrangement, they offered their services free of charge. Thus Charity Hospital acquired two groups of visiting physicians: the faculty during the school session in the winter and the independent physicians during the summer.

In 1848, when the school became affiliated with the University of Louisiana, the medical department occupied a new building which was said to be most adequately equipped for teaching medicine. The structure, located a short distance from the hospital, held three large lecture rooms seating three hundred, a hall for a museum, and several large dissecting rooms. From this time on, the fame of the school increased and students were attracted in large numbers, so that in 1859 the school ranked fifth in number of students in the United States. Three years of study were required for graduation, the first year under a private tutor and the last two years in the medical school. The curriculum included 32 hours of lectures: anatomy, five hours; pathology and physiology, four hours; theory and practice of medicine, six hours; surgery, five hours; obstetrics and diseases of women and children, four hours; materia medica and therapeutics, four hours; and chemistry, four hours.

With the outbreak of the Civil war, the medical school closed its doors as its students and faculty marched off to the battle-

field. At the end of the war the school was reorganized.

In 1882 Paul Tulane became a benefactor of the University of Louisiana and soon thereafter the school adopted its present name. Today the School of Medicine of the Tulane University of Louisiana occupies the Richardson Memorial building on the university campus and the Hutchinson Memorial building adjacent to Charity Hospital.

In 1906 Tulane University absorbed the New Orleans Polyclinic, the most outstanding graduate medical school in the South. The Polyclinic, founded in 1888, had on its faculty some of the ablest clinicians of the South headed by Dr. Rudolph Matas and Dr. Charles Chassaignac. It attracted physicians from both North and South America because it afforded the unusual clinical facilities of Charity Hospital, the Eye, Ear, Nose and Throat Hospital and of the New Orleans Sanatorium. It may be noted here that the renowned Tulane School of Tropical Medicine had its incipency in the Polyclinic.

NEW ORLEANS SCHOOL OF MEDICINE

In 1856 the New Orleans School of Medicine was established. It was to have a brilliant though brief career. Its capable and progressive staff included a group of distinguished physicians headed by Dr. Erasmus Darwin Fenner. Dr. Fenner, who was the founder in 1844 of the still extant New Orleans Medical and Surgical Journal, had studied methods of clinical education in various European centers. He was eager to see these methods applied at Charity Hospital where the clinical resources were comparable to those of Vienna or Paris. The New Orleans School of Medicine "resolved at its inception to quit the beaten track so long pursued in this country, and to strike at once for the latest improvements in teaching, which have been established in the greatest Medical Institutions of the day."⁷

Rivalry was keen between the newly founded school and the established Medical College of Louisiana (Tulane). To protect themselves the students of each school

marched in groups from their lecture halls to the hospital. At times they threw missiles at each other and clashes were not infrequent.

The New Orleans Medical School suspended operations at the outbreak of the Civil War, and though it was reopened in post-war days, it never regained its former eminence and finally closed in 1870. A few years later an effort was made by some of the former faculty members to organize the Charity Hospital Medical College but this new school fared poorly and ceased to operate in 1878.

LOUISIANA STATE UNIVERSITY SCHOOL OF MEDICINE

The present Louisiana State University School of Medicine represents the culmination of a protracted effort begun in Civil War days to incorporate a medical school in the state university. The first attempt is noted in the establishment of the Special School of Medicine at the predecessor of Louisiana State University, the Louisiana State Seminary of Learning, (1866-67).⁸

The charter granted to Louisiana State University in 1877 authorized the establish-

ment of a medical department. In the years to follow, frequent plans for the founding of a medical school failed to mature.⁹ The Louisiana College of Medicine founded in 1906, the New Orleans Post Graduate School of Medicine in 1914, the Loyola Post Graduate School of Medicine in 1917, all represent efforts to provide the state university with a medical school. These attempts failed.

With the expansion of Louisiana State University in the late 1920's the proposal for a medical school was again considered and this time the plans succeeded. The Board of Administrators of Charity Hospital approved the erection of a medical school building on the grounds of Charity Hospital, and the first session of the Louisiana State University School of Medicine began in the fall of 1931. The faculty was composed of prominent physicians, many of whom had been on the faculties of Tulane and the defunct Loyola Post Graduate School of Medicine. The first class to receive its full four year training at the new school of medicine graduated in 1935. The present enrollment in the four classes is 336

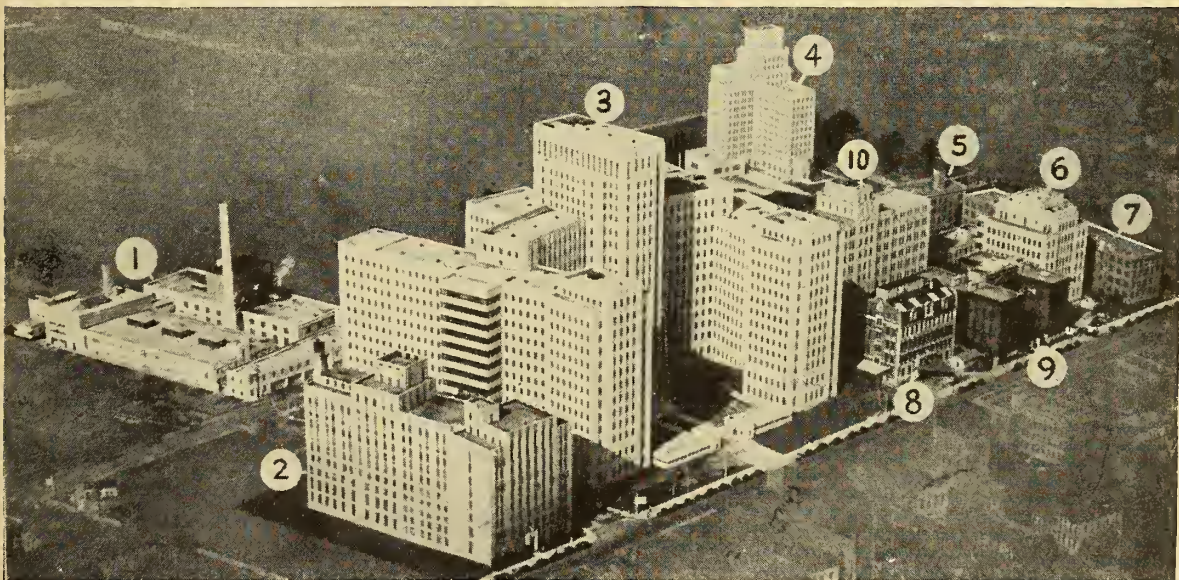


Fig. 2. The Charity Hospital group (1942). (1) Auxiliary buildings comprising laundry, garages, warehouse, power plant, ice house, animal house, incinerator, auto repair and paint shop. (2) Hutchinson Memorial Building, School of Medicine, Tulane University. (3) New main hospital building. (4) School of Nursing and Nurses' Residence. (5) Sisters' Home Building. (6) Lapeyre Miltenberger Home for Convalescents. (7) John Dibert Tuberculosis Hospital. (8) Delgado Memorial Charity Hospital. (9) Richard Milliken Memorial Hospital (10) Louisiana State University School of Medicine.

students, the majority of whom are residents of Louisiana.

Thus we have seen how, in the course of its history, famous Charity Hospital has provided clinical facilities to quite a number of medical educational groups. Today Charity Hospital is an institution of over 3000 beds with an annual admission of 63,852 patients (1939-40). To its outpatient clinics 463,803 visits are made. An average of 49 operations is performed daily, a total of 18,073 during the year, and over 1500 autopsies were done during the past year. In the obstetric service more than 5000 new births are listed.

The vast amount of clinical material at Charity Hospital is used by two medical schools whose students assist the house staff in both the wards and clinics. A visitor who wanders through the buildings may notice groups of students examining patients at the bedside or in the clinics, assisting at deliveries or giving anesthetics to the surgical patients. Larger classes of students may be seen at clinical sessions in classrooms on various floors of the hospital. In each of the two spacious amphitheatres as many as 250 upper classmen may be attending a diagnostic clinic, while later the same group may be seen at a clinico-pathologic conference in the large pathologic amphitheater.

The New Orleans Charity Hospital, with its 150 interns, 110 residents and a visiting staff of about 450 physicians, its two associated medical schools with 700 students, forms a very important part of our nation's medical educational facilities.

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ASTHMA THEN AND NOW THE LIFE OF HENRY HYDE SALTER

VINCENT J. DERBES, M. D.*

NEW ORLEANS

The past twenty-five years have witnessed a tremendous increase in the knowledge of asthma. So marked has this been that it is apt to be forgotten that much was known in the middle of the past century and to rediscover old facts. In the early sixties Salter wrote "*On Asthma*"¹ a book which summarized in a remarkable way what he had learned in a lifetime of study of this condition.

The author,^{2,3,4} a son of Thomas Salter, a well known surgeon, was born in Poole, Dorsetshire, England in 1823. He was educated under the eye of his father. In 1844 he matriculated at the University of London and entered the general literature department of King's College, having already gained enough medical information to be able to compete successfully for the prize of the King's College Medical Society while yet a student in the academic school. This prize was for an essay, the subject of which was the disease of the valves of the heart. After two years' study he took a B. A. in 1846 and at once passed into the Medical Department. Here he devoted all his powers to his work and succeeded in gaining a much sought after scholarship. He gained other distinctions during his student career, and in 1849 was appointed demonstrator in anatomy. In the same year he took the

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degree of M. D. of the University of London. Shortly afterwards he became a member of the College of Physicians, of which he was elected a Fellow in 1856, being the youngest Fellow of the College, and likewise the youngest member of the Royal Society to which he was shortly afterwards elected. In addition to his college work he labored assiduously at the hospital and was house physician. In the autumn of 1851 he entered practice. In 1854 he was appointed lecturer on physiology at the Charing Cross Hospital to which he became assistant physician the following year. He held the chair of physiology for 12 years and then succeeded to the lectureship in medicine, becoming in 1866 physician to the hospital.

Salter had himself been a sufferer from asthma, and early in his career he turned his attention especially to chest disorders, and began to collect materials for a work on his own malady. He had suffered from hay fever and hay asthma and described his symptoms accurately, though pollinosis cases had been accurately described earlier by Bostock, Phoebus and others. He was, however, the first to describe asthma due to animal emanations. His description of his own case is so interesting that it is quoted in detail.

“Cat-asthma—This singular phenomenon is, I imagine, almost peculiar to myself. The cause is the proximity of a domestic cat; the symptoms are very similar to those of hay-fever, and are occasioned by some sudden influence inappreciable by the senses. I believe some asthma would present itself if I were sitting by the fire and the cat sleeping on the hearth-rug; but the effect is much greater when the cat is at the distance of one or two feet, or still closer; it is still further increased by the raising of the fur and moving and rubbing about, as is the habit of cats when they are pleased, also by stroking their fur; but most of all when they are in the lap just under the face. The influence seems to be stronger in kittens from two months old and upwards than in full-grown cats. Hav-

ing been almost always accustomed to cats, I have had abundant opportunity of testing the peculiarities of this singular phenomenon.

“The symptoms closely resemble those of hay-fever, with only such difference as might be expected from the near proximity of the cause, from its defined and local nature, and also for the facility for its entire and immediate removal. The asthmatic spasm is immediate and violent, accompanied with sneezing and a burning and watery condition of the eyes and nose, and excessive itching of the chin, which may also extend to the chest and between the shoulders; the eyes are injected, and instinctively avoid the light, and the caruncles are more or less enlarged. I believe if the cause were suffered to continue, all or most of the other symptoms of hay-fever would ensue, only with a more excessive and conspicuous asthma. After the removal of the cause the symptoms begin immediately to subside, and if the paroxysm is not very severe the cure is effected in five or ten minutes, leaving a tendency to mucus at the top of the windpipe, which being repeatedly removed in the ordinary way, the last symptom disappears.

“This includes all I have to say respecting the cat-asthma; but I shall here notice the evidence of the more general influence of cats on my system—of the existence of which I am disposed to call cat-poison.

“The symptoms of this poisoning are consequent on touch or puncture. The eyes, lips, and cheeks are susceptible of the effect of touch, but a puncture of the claw affects equally any part of the surface of the body. The eyes are more readily affected than the lips, and the lips than the cheeks. I have often known the eyes and lips most painfully affected by being touched by the fingers after handling a cat. The eyes would at all times be affected by this means, but I do not think the lips would, unless there were some little crack or flaw in the skin. The effect on the eye of rubbing it just after touching a cat is to produce a hot, stinging irritation, a profuse flow of

tears and injection of the whole eye, a tender, painful swelling of the carunculae and intolerance of light. The result on the lips is a general enlargement and sometimes a lump or protuberance at the part principally affected, together with a feeling of heat and irritation. If the cat rubs against the face, the cheek immediately becomes hot, a little swollen, and of a suffused red; sometimes there appears a defined little protuberance, something like nettle-rash, which I imagine is produced by the puncture of a hair.

"The wound from a claw, whatever be its form, is always surrounded by a white, hard elevation or wheal, very much resembling the appearance consequent on the sting of a nettle. The pain, which is very much greater than attends ordinary scratches, is accompanied by a feeling of irritation and itching, like the pain of the scratch and a nettle-sting combined.

"The saliva of a cat is perfectly innocent, and a bite with the tooth in no way differs from ordinary wounds of the same character; in a word, I believe the influence is, in its source, exclusively cutaneous."

He died on August 31, 1871, after a tedious illness, from abscess of the lung.

Although the allergic concept was not to appear until the turn of the century and Salter's observations would be explained differently today, he had a remarkably complete grasp of the agents which may precipitate an attack of asthma. He conceived the actual mechanism to be bronchial narrowing due to: (a) plugs of tenacious mucous; (b) exudation thrown out in the submucous areolar tissue; (c) congestive or inflammatory thickening of the mucous membranes, or (d) contraction of the circularly disposed smooth muscle. He believed asthma to be a nervous condition initiated by various externals. He classed these according to things inhaled, alimentary irritants, and psychic stimuli.

Many of the allergens mentioned by Salter have been rediscovered by later workers. Of the things inhaled he considered house dust to be the worst, and most apt to

produce asthma. He had known asthmatics who could not tolerate the least dust. A remarkable case was a clergyman allergic to rabbit dander who was always able to detect poaching parishioners by the wheezing induced by the rabbits hidden in the recesses of their garments.

He believed "peptic" asthma to be the most common of all the varieties, in which the induction or prevention of attacks is entirely controlled by the state of the digestive organs. Some error of diet, the eating of some particular thing, eating too much or too late in the day he considered sure to bring on an attack. On the other hand, he considered a certain dietetic abstention was as certain to be attended with immunity to the disease. This he explained as due to either pneumogastric stimulation (as the vagus is the only single structure with a distribution common to the lungs and alimentary tract) or to the venous system. "It is," he stated, "in this way, by the actual presence in the vessels of the lungs of the materials taken up from the stomach and intestines, that the introduction of food gives rise to bronchial asthma. A contaminant blood is the irritant; by this I do not mean that the material is necessarily peccant; it may be perfectly normal and yet cause asthma."

In view of Duke's⁶ work on physical allergy, Salter's patient in whom application of cold to the instep was invariably provocative of an attack, is particularly interesting. He considered this case to be due to psychic stimuli and listed other instances in which sudden or violent mental emotion would bring on an attack. There was the child who had asthma when scolded; the man who had attacks on two occasions because he thought he had administered an overdose of belladonna to his wife; and the patients in whom venereal excitement produced asthma. He recognized that the immediate effect of emotion is always to cut short the asthmatic spasm if it exists. He describes cases in which sexual intercourse or onanism relieved paroxysms. He wrote of a doctor who had an attack of asthma

while seeing a patient, got on his horse to ride back for some ipecac; the horse ran away with him and when finally he had the animal under control his asthma had disappeared.

Salter had no doubt that asthma is hereditary. In 40 per cent of his 226 cases other members of the family had the disease. He observed that there is no time of life at which asthma may not make its appearance from the earliest infancy to old age. He knew that the cases that come on in early life are usually secondary to the bronchial disorders of childhood—bronchitis, measles and whooping cough. Those that come on late in life are commonly cases of organic asthma. Dividing life into decades, his cases showed that most started in the first decade with a sudden fall in adolescence and after this there was a gradual rise up to 40. He remarked that “there is something in addition to vascular change in the bronchial tubes and organic lung damage to account for this decreased incidence. This something is undoubtedly the asthmatic tendency or idiosyncrasy. As each year is added, an individual is decreasingly likely to be exposed for the first time to the exciting cause of the disease; if anyone has the asthmatic tendency within himself it is not likely that he will travel far in life without the exciting cause presenting itself.”

His symptomatology of asthma differed in no wise from that which we now recognize. His diagnosis as to bronchial asthma was identical with ours but, of course, the etiologic allergic study was non-existent.

The list of drugs used eighty years ago is remarkable in its similarity to those used today. It is true that the drugs on which physicians place main dependence today, that is, ephedrine, epinephrine and aminophyllin, were not yet on the scene but the long list of subsidiary drugs is strikingly parallel to ours. It includes: stramonium, burned niter paper, chloroform and other inhalations, hyoscyamus, squill, potassium iodide, lobelia, ipecac, alcohol, and tobacco (to be smoked, as a strong cigar or pipe, to

the point of nausea). Opiates were used then as now but Salter opposed their use for he had rarely seen opium do good and had often seen it do harm; by producing lethargy and by lowering sensibility it prevents the acute and prompt perception of respiratory arrears. Finally it causes muscular spasm of the bronchi. It is of interest that the consensus of allergists today is the same.

The general and dietetic treatment of asthma in Salter's day is equally valid now. He recognized that asthmatics are often dyspeptics and hence their food should be plain, well cooked and contain the proper proportion of animal and vegetable elements. The patient should eat only twice a day to avoid having a full stomach when he retires. Asthmatics should avoid the foods they have found to cause trouble.

At the present time an attempt is made to determine whether the asthma is of the intrinsic or extrinsic variety. If it is of the latter type a search is made for the offending substances, by a combination of a careful history and proper skin tests. It may be well to point out that while the skin test is a very valuable laboratory procedure, it has the same limitations which are inherent in all such procedures.

Materials for testing should be selected in view of the circumstances surrounding the case. For this purpose the history may be of inestimable value in directing the attention to certain possible agents which may be responsible for the onset of attacks. Further proof of this relationship is obtained by positive skin reactions to non-irritant diagnostic solutions, or at times by means of therapeutic trial. As Tuft points out, the latter method is more frequently utilized in those non-sensitive types of allergic asthma in which clinical sensitivity may exist even in the presence of negative skin reactions. This is particularly true of sensitivity to food allergens.

Today the specific method of treatment of asthma is used whenever possible; as in the case of all other allergic diseases this is dependent on the etiologic factors unearthed

by the diagnostic survey. It may be summed up, then, by saying that therapy consists in the elimination of the offending agents whenever this may be done. When this is not feasible for one reason or another, specific or non-specific desensitization is inaugurated. Naturally certain materials are more readily avoided than others; these would include foods, animal danders, orris root, pyrethrum and the like. Contrariwise, it is virtually impossible to escape from pollens and to a lesser extent, this is true of house dust, a potent cause of asthma. In this latter case contact should be reduced to a minimum by the use of dust proof pillow and mattress covers and at the same time an attempt should be made to increase the patient's tolerance by desensitization. Starting with small doses of the appropriate extract, increasingly large amounts are given until the symptoms are under control, a maintenance dose then being given. Avoidance of dust may be sufficiently complete to relieve the asthmatic episodes but more generally desensitization is required. It is impossible to avoid pollens, of course, unless the patient removes to a locality where these do not occur. In such cases the relief is usually but temporary because new sensitizations will often develop.

Administration of bacterial vaccines is often employed, frequently with great benefit; this is especially true of those individuals in whom there is a complicating sinusitis or chronic bronchitis. There is some controversy as to whether stock vaccine is to be preferred to autogenous or vice versa. It is felt by the proponents of stock vaccine that the superficially lying saprophytes are utilized in autogenous vaccines whereas the pathogens are more deeply embedded and are less apt to be expectorated. Assuming that there is a suitable vaccine, the dosage is determined by the patient's response. If upon the administration of say, 0.1 c. c. of a vaccine containing 5,000,000 organisms per cubic centimeter, the patient becomes worse, it is concluded that the dose was excessive and less is given next time; if the patient

feels better the dosage is maintained; if on the other hand, no change is apparent, the patient has received an inadequate amount of vaccine. Of course, if correct vaccine is not being used, no change of any type will be observed.

Numerous forms of non-specific therapy are also employed; intravenous typhoid vaccine, milk injection, peptone, tuberculin and autohemotherapy. Roentgen ray and physical therapy belong in this same category. Naturally no form of non-specific treatment should be employed until a reasonable opportunity for relief, based on allergic principles, has been afforded. A word concerning lipiodol may not be out of place. It is the consensus among allergists today that lipiodol is a dangerous drug to use in routine therapy; the occasional patient may receive spectacular relief, more generally there is no benefit, and not rarely, death. In a large allergy clinic in Oklahoma the mortality rate in their asthmatic patients went up 500 per cent when lipiodol was widely employed.

As Tuft points out, the value of surgical measures for the relief of asthma is not sufficiently definite to warrant their employment except as a last resort in the hopelessly intractable asthmatic.

Salter observed that change of address would often cure asthmatics; this is of value because of the escape from environmental allergens. In the less fortunate economic brackets I observed dramatic relief when the patient moved to one of the new Federal Housing Projects. As a general rule, however, change of environment is indicated in only a small percentage of asthmatics in whom a dry, warm, equable climate exerts a beneficial effect; especially is this true in patients who develop sinusitis or chronic pulmonary complications.

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AN UNDESCRIBED FLUOROSCOPIC FINDING IN SOLITARY ABSCESS OF THE LIVER

CASE REPORT

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NEW ORLEANS

This case is reported primarily because of a most unusual fluoroscopic finding, which may or may not turn out to be of value in the diagnosis of these obscure cases. Evarts Graham has sagely observed that even though all signs and symptoms be present, doubt may persist regarding the presence of suppurative disease in the liver, its character and extent. To put it briefly, the average time which elapses between the onset of symptoms and the establishment of a positive diagnosis is at present far too long.

Cases which show elevation and fixation of the diaphragm, cases which show changes in the cardiophrenic and costophrenic angles and particularly cases which show pulmonary signs are all of them far advanced. In a case under my personal observation six months had elapsed between the onset of symptoms and positive x-ray findings. The patient had lost 45 pounds and had been subjected to much unnecessary expense and suffering.

CASE REPORT

W. F., aged 31, gave a history of persistent diarrhea in 1937. There was mucus but no blood in the stools. After the diarrhea had lasted about two months he wrote to a cousin who advised him to take anayodin. He took 30 or 40 tablets over a period of about 30 days and had some relief. He did not feel entirely well and went to the Marine Hospital, New Orleans, where he remained four weeks. X-ray examination revealed a gastric ulcer and some trouble with the appendix. No amebae were found.

Three years later he had an acute attack of pain in the right lower quadrant. He was seen by a competent surgeon who told him he had an acute attack of appendicitis and should be operated upon. He did not follow this advice and after about ten days recovered and went back to work. There is nothing else of note in his past history. He had been an excellent athlete at college and during his Senior year he weighed 189 pounds. After leaving college his weight gradually dropped to 170 pounds, which he regarded as being normal. In the past

six months his weight dropped from 170 to 153 pounds. He ascribed this to stomach trouble. When asked to describe this stomach trouble he said that he had indigestion with nausea and vomiting every Friday if he ate fish from the market. He stated emphatically that fresh fish did not cause indigestion.

Present Illness: On November 29, 1941, he awoke with a heavy feeling in his stomach. There was diarrhea all day but no nausea. At 2 a. m. the next morning he was awakened with a severe pain in the epigastrium. He felt by turns chilly and feverish but did not take his temperature. In spite of the location of the pain he was convinced that he had an attack of appendicitis. He refrained from eating and put an ice bag on the right lower quadrant. He took several doses of paregoric with little or no effect. He vomited several times during the afternoon and night of November 30. On December 1 he called at my office. Examination showed a tall muscular individual apparently suffering a moderate degree of pain. The temperature was 99, pulse rate 86, blood pressure 120/80. Both lobes of the liver were found to be enlarged, the border of the right lobe extending four finger 'breaths' below the costal margin. There was some tenderness over McBurney's point but most of the tenderness was found in the epigastrium distinctly to the left of the midline and at the level of the cartilaginous termination of the seventh rib. The pain was not increased on deep inspiration. There was no friction rub.

He was sent to the Southern Baptist Hospital for a short gastrointestinal series and the following was reported: "Stomach, six hour observation, empty; food column in sigmoid; hypermotility. Stomach negative and duodenum negative. Pressure on the stomach near the pylorus causing filling defect. Spleen enlarged." He now began to complain bitterly of dysphagia. When his stomach was empty he felt fairly comfortable but the ingestion of even the smallest quantities of food caused intense pain which lasted about one-half hour.

On December 2 and 3 he had a number of chills followed immediately by fever, height unknown. On December 4 he was admitted to the Southern Baptist Hospital. On admission the temperature was found to be 102, pulse rate 92 and respiration 28. The following laboratory findings are of interest: On December 4 the red blood cell count was found to be 4,000,000, hemoglobin 76 per cent, white blood cells 12,000, small mononuclears 19, neutrophils 81. Blood culture on December 6 was negative. Sedimentation index taken on December 6 was 28 mm. Observation at 30 minutes showed 26 mm. of sedimentation. December 7 the white cell count amounted to 17,500, small mononuclears 14, 2 large mononuclears and 84 neutrophils. December 9 the white cells numbered 13,800, small mononuclears 22, neutrophils 78. On December

12, two days after operation, the red cells were 3,600,000, hemoglobin 69 per cent, white cells 17,100, small mononuclears 7, large mononuclears 1, neutrophils 92. Agglutination test for *B. proteus* positive in 1-40 dilution. Paratyphoid B weakly positive in 1-40 dilution. Agglutinations for typhosus and *B. abortus* were negative. Cultures for the dysentery group were negative.

The patient was given an initial dose of 4 grams of sulfathiazole followed by 1 gram every four hours. On December 7 the afternoon temperature rose to 102.1. December 8 the afternoon temperature was 102.3. December 9 the afternoon temperature rose to 102.8.

Dr. P. H. Jones was then called in consultation. The patient was obviously acutely ill and Dr. Jones suggested the possibility of a perforation of an ulcer into the lesser peritoneal cavity. A flat plate was made of the diaphragm and reported "negative for pneumoperitoneum. Some irregularity about the psoas muscle on the left. It is not as well defined as on the right."

Pain on swallowing became steadily worse. On December 8, for the first time, the patient complained of pain in the left scapular region on deep inspiration. Again examination showed no friction rubs. On December 9, at the suggestion of Dr. Jones, a fluoroscopic examination was made of the liver and both halves of the diaphragm. This examination was conducted by Dr. Louis J. Bristow, Jr., with Dr. Jones and myself as observers. An area of increased density about 7 cm. in diameter was easily detected under the left half of the diaphragm. The midclavicular line bisected this area. We assumed that an abscess in the left lobe of the liver had been visualized. The entire liver shadow was then explored but no other dense areas were observed. The movements of the left half of the diaphragm were not restricted, the diaphragm was not elevated nor was there any alteration in its normal curvature.

Operation: December 10, 1941, under spinal anesthesia (28 mg. pontocaine in 3 c. c. 1 per cent glucose administered by Dr. A. Caine), the abdomen was opened by a transverse incision running from the tip of the ninth rib across to a point 1 cm. within the lateral margin of the right rectus muscle. All structures were divided in line with the skin incision. The left lobe of the liver, much enlarged, was encountered as soon as the peritoneum was opened. The exposed area was carefully walled off with large gauze rolls, after palpation of the right lobe of the liver and after palpation and inspection of the stomach and the first portion of the duodenum. It was found that the right lobe of the liver was much enlarged. It was evident that the change in the contour of the greater curvature of the stomach was due to hypertrophy of the liver. The left lobe of the liver was then explored. Palpation of the superior surface of the left lobe revealed an area of induration.

From the digital examination it appeared that the abscess was pointing between the layers of the left suspensory ligament, which, of course, is an extraperitoneal area. The apex of the abscess cavity was invaded by the examining finger and approximately six ounces of pus evacuated from the abscess cavity. A specimen of the pus was preserved for culture. Twelve grams of powdered sulfanilamide were distributed into the operative field, some of it in the abscess cavity, some of it over the surface of the left lobe of the liver and some of it in the incision itself. Two cigarette drains were placed in the abscess cavity. The gauze rolls were removed and replaced by iodoform gauze. The incision was then partially closed, leaving the cigarette drains and the ends of the iodoform gauze protruding. One drain was removed in 48 hours, all drains were removed by the end of the sixth day. A transfusion of 500 c. c. citrated blood was given four days after operation. The course of convalescence was uneventful and he was discharged from the Hospital December 21, 1941. At that time the incision was almost healed.

On December 15 it was reported that the culture of pus from the abscess was negative for both aerobic and anaerobic organisms. A smear made immediately showed no amebae, but many extremely small gram-positive diplococci. The stool examinations made early in January, 1942, were negative for amebae.

COMMENT

It would seem after a very careful review of the literature that the most certain diagnostic implement is the intravenous injection of 25 c. c. of thorotrast on three successive days, to be followed by x-ray examination. This has been advocated and employed by Harry Koster of Brooklyn since 1932. The medical profession as a whole, however, apparently fears the long range toxicity of any radio-active substance. Thorotrast has these advantages: a diagnosis is quickly established in pylephlebitis; differentiation between single and multiple abscesses can be made with certainty. If examination is negative after the intravenous injection of thorotrast, it is certain that the suppuration, if present, is extrahepatic.

Had thorotrast been used in this case the diagnosis would have been established earlier. The author believes that exploratory puncture of the liver should be severely condemned. He further believes that were all unsuccessful exploratory procedures reported the list would be long and discourag-

CASE REPORT

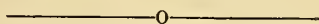
ing. In a case seen personally many years ago a large venous sinus was encountered and the withdrawal of pure blood caused grave apprehension.

There is no question that if the position of the abscess is definitely known, and this position is such that it is readily accessible to a large bore needle, repeated aspiration accompanied by the use of emetine, is the treatment of choice, since it avoids a major surgical procedure.

The extraperitoneal approach to the abscess is certainly advisable, but if it is not used the careful walling off of the site of operation, together with the liberal use of powdered sulfanilamide, offers the patient a fair degree of protection from peritonitis.

SUMMARY

A demonstration of an increased area of density in the liver substance by means of the fluoroscope in a single case is not of much significance unless it is confirmed by further observation. I trust that suspected cases will be given a careful fluoroscopic examination in order to confirm this finding or to establish it as a rarity.



ARRHENOBLASTOMA OF THE OVARY

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WOODARD BEACHAM, M. D.†

AND

HERBERT J. SCHATTENBERG, M. D.*

NEW ORLEANS

Interest in masculinizing tumors of the ovary was first aroused in 1930 through the writing of Robert Meyer.¹ Since that time Novak,² Norris,³ Dockerty and MacCarthy⁴ and others have presented additional cases and excellent reviews of the subject. In 1941 Krock and Wolfermann⁵ were able to collect but 70 cases of arrhenoblastoma of the ovary from the literature. We wish to add a case that recently came under our observation.

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H. G., a colored female, aged 42 years, was admitted to the hospital on January 2, 1939, at 10:40 a. m. Her chief complaint "backache" and amenorrhea of four months' duration. In September, 1938, patient menstruated for the last time. Previous to this she had noticed regular menstrual periods, in that they occurred once monthly, but that there had been a gradual decrease in amount of menstrual flow. She also had been troubled with very severe headache, lower abdominal pains and the passage of large clots.

The menstrual history was 11 x 29 x 4-5; entirely regular until about a year ago when change of color and in the amount of flow began. Since September she has suffered very severe aching pains in the back, especially in the lumbar and sacral regions, there being more of a pulling sensation than an actual pain. There has been absolutely no discharge of blood during the period from September, 1938, to the present time.

Head: Negative. E. N. T.: Has noticed no voice changes.

The past history revealed no previous hospitalization except for tonsillectomy in 1921. She has been well most of her life, except for usual childhood diseases, pneumonia, influenza, and yellow fever in 1905. Patient has been shaving once weekly for about 10 or 15 years.

Family history: Mother died of liver disease; father died in an accident. No history of tuberculosis, carcinoma, lues, mental disorders, kidney disease or allergy. One brother has "ulcers of the stomach."

Marital history: Married twice. Separated from first husband after two and a half years. One pregnancy, terminated at the third month due to a fall. Married to second husband 10 years, without becoming pregnant. She and her husband get along "very well."

Physical examination: B. P. 126/88, respiration 24, pulse 88, temperature 99 F. Head: Negative. General condition: Patient is a well developed, well nourished, intelligent, cooperative and oriented colored female about 42 years of age, who is apparently not actually ill. The voice is rather low pitched and more masculine than one would expect in a female. The skin is of a coarse texture and there is hypertrichosis; especially is there an abundance of hair about the chest, and much more hair on the face than is normal of her sex. The lymphatics are essentially negative. The pupils are equal, react to light and accommodation, no abnormalities. The thyroid is readily palpable but not enlarged and is not nodular. There is no rigidity. The thorax is well formed, muscular and symmetrical. The lungs are clear and resonant. The heart is not enlarged; there are no murmurs, thrills or irregularities. The abdomen is negative to

pathology. Genitalia: Multiparous introitus. There is a very large clitoris (7.2 cm.). Uterus is large and firm and is nodular. There are fibroids, seemingly pedunculated, which are attached to the uterus. The uterus is retroflexed. A mass, about the size of a small orange, is palpable in the cul-de-sac. Sedimentation rate, 1 hour plus. Masculine distribution of hair.

Laboratory: Urine negative. Blood chemistry: Urea nitrogen 15.4 mg. per 100 c. c., sugar 95. Roentgenograms: (Dr. J. B. Irwin) Lateral view of the skull shows no abnormality of the sella turcica or evidence of tumor or adrenal calcification. EPA of chest shows no significant increase in perihilar and peribronchial markings and no evident lesion in the lung parenchyma. Electrocardiogram showed evidence "suggestive of myocardial disease. Left axis deviation. R-2 low and notched on upstroke. P-2 and P-3 high." Blood: 80 per cent hemoglobin, 4,750,000 red blood cells, 7,500 white blood cells, differential normal, no parasites.

Preoperative Preparation: Enema and alkaline douche night previous to, and morning of, operation. Sodium phenobarbital grain 1 at bedtime. Morphia grain $\frac{1}{4}$ and atropine grain $\frac{1}{150}$ hypodermically on call.

Preoperative Diagnosis: Arrhenoblastoma of blastoma of ovary; uterine fibroids and recurrent appendicitis.

OPERATION

Cyclopropane, oxygen, ether vapor anesthesia begun at 9:30 and discontinued at 10:30 a. m. Under general anesthesia, after preparation of the skin of the abdomen with benzine and mercuric chloride, an infra-umbilical midline incision was made. Upon opening the peritoneum, the fibroids came easily into view. The mass in the left adnexal region proved to be a pedunculated

fibroid, the fibroid arising from the posterior-superior aspect of the uterus, and having a very small pedicle. This tumor measured about 13 cm. in diameter. The ovary on that side was very small, having undergone cystic degeneration and fibrosis. The ovary on the right side was within the upper limits of normal in so far as size was considered and its consistency was quite firm. Sectioning of the ovary proved it to contain a very pale yellow tumor, which evidently did not arise from the hilar portion of the ovary and which involved approximately four-fifths of the ovary without any evidence of invasion into the capsule.

A bilateral salpingo-oophorectomy was performed, using chromic catgut No. 2 as the suture material and being especially careful to ligate securely both ovarian arteries. The round ligaments were clamped near the uterus, severed and ligated with chromic catgut No. 2. The vesico-uterine fold of peritoneum was reflected down and the integrity of the bladder and ureters preserved. The tops of the broad ligaments were clamped, severed and ligated with transfixion sutures of chromic catgut No. 2. The uterine arteries were treated in a similar fashion, and the uterus was amputated just below the junction of the corpus and cervix. Tincture of mercuric chloride was applied to the stump, and three interrupted sutures of chromic catgut No. 2 were used to close it. The round and infundibulopelvic ligaments were then brought down and anchored to same to prevent prolapse thereof. The vesico-uterine fold proved quite adequate for peritonealization, chromic catgut No. 2 being used. There was no bleeding; no raw areas, the lap six count was correct.

The appendix presented evidence of a diseased state, containing many fecaliths; consequently, its meso was clamped, severed and ligated with chromic catgut No. 2. The appendix was crushed near its base and ligated with plain 0 catgut. The scalpel was used to sever the appendix distal to the site of ligation, and the stump was phenolized and alcoholized. It was then inverted and



Fig. 1. Gross picture of intra-ovarian neoplasm, well encapsulated, lobulated, solid and of a yellow color.

the purse-string suture of linen 0 tied. There being a correct lap six count and no bleeding, the omentum was returned to its place in the pelvis and the peritoneum was closed with a continuous suture of chromic catgut No. 2. Similar material was used for approximation of the fascia after the introduction of three silkworm gut retention sutures. A continuous interlocking suture of medium dermal was employed for approximation of the operation. Her blood pressure was maintained around 130/80, and her pulse rate did not exceed 95 at any time. Bilateral salpingo-oophorectomy, supra-cervical hysterectomy and appendectomy performed.

The postoperative convalescence was uneventful. Maximum temperature 101 F. on the first postoperative day. The patient was afebrile after the third postoperative day. Sutures removed on the ninth postoperative day, the wound having healed by primary intention. She was discharged on the eleventh postoperative day, and returned to her home here in the city.

PATHOLOGY REPORT

The specimen consists of a uterus, two tubes, two ovaries and an appendix. The uterus appears enlarged and, upon section, it is noted that it is the site of six tumor masses, measuring from 1 cm. to 11 cm. in diameter. Some of these tumor masses are located within the myometrium, others are located subserously and are pedunculated. They are of a spherical shape, well encapsulated, cut with increased resistance and have a characteristic whorled appearance on cut section. The tubes appear of normal length and show nothing of note grossly. One of the ovaries appears somewhat smaller than normal and is quite firm and fibrotic. The other ovary is the site of a definite tumor mass, measuring 2½ cm. in diameter. This tumor mass cuts with moderate resistance and has a light yellowish appearance on cut section. It appears quite well encapsulated. The appendix measures 4½ cm. in length and 1.2 cm. in diameter. It shows nothing of note on external ex-

amination. On cut section the wall is markedly thickened, and the lumen is obliterated.

HISTOPATHOLOGY

The neoplasm in this instance presented the important classical histologic features of arrhenoblastoma. Neoplasms of this type supposedly arise from undifferentiated cells in the region of the rete ovarii. On the basis of histologic types, three forms of arrhenoblastoma may be mentioned: (1) The adenomatous type in which there is more or less mimicking of seminiferous tubule formation, often a sparsity of interstitial cellular structures and, therefore, at times little or no endocrine effect; (2) the diffuse spindle cell type which may simulate a sarcoma; (3) a mixed type in which tubular remnants and cuboidal cells with a pinkish staining cytoplasm, resembling Ley-

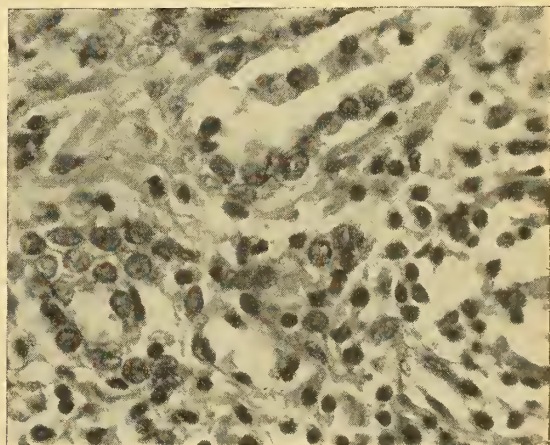


Fig. 2. Photomicrograph showing three alveolar structures lined by cuboidal epithelium resembling seminiferous tubule formation. x 400.

dig cells, are noted in a diffuse spindle cell stroma.

All in all, the histologic structure of arrhenoblastoma may vary within the widest limits. Various combinations of those types mentioned may be noted.

The histologic pattern of the arrhenoblastoma in the case herein reported presents features which the authors feel are classical for a neoplasm of this type. To begin with, numerous tubular structures lined by a single layer of cuboidal or colum-

nar cells, resembling seminiferous tubule formations are noted. These structures present rather conclusive evidence as to the histogenesis of this neoplasm. Secondly, certain isolated cells and cells in groups may be noted in the hematoxylin-eosin stained sec-

fact that she has had a bilateral salpingo-oophorectomy.

CONCLUSION

A case of arrhenoblastoma of the ovary with typical histologic and clinical findings is presented.

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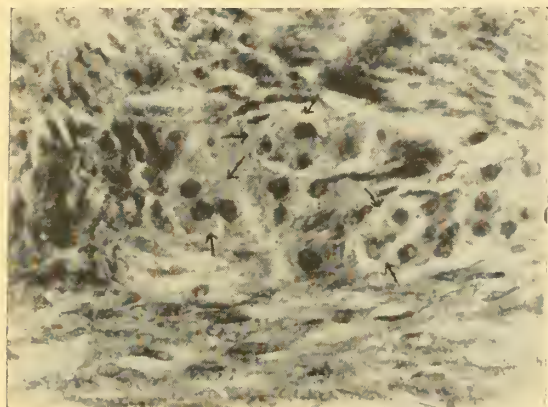


Fig. 3. Photomicrograph with arrows pointing at nests of cells with dark staining nuclei and large amounts of clear pink staining cytoplasm. Their resemblance of Leydig cells is striking. x 500.

tions which are roughly spherical, but more often cuboidal in shape. The cytoplasm of these cells is abundant, granular and stains intensely pink. It appears not unlikely that these cells may have a histogenetic relationship to the interstitial cells of Leydig. Finally, there is noted a diffuse strand-like arrangement of certain cellular components of this neoplasm. The cells making up this arrangement appear tapered or spindle-cell like, suggesting a sarcomatous pattern. Cells making up these strands or bundles run at right angles to one another. It is for this reason that on section some of the cells are cut longitudinally, presenting a spindle-cell contour, while others in the same section are cut transversely and, therefore, morphologically appear spherical.

FOLLOW-UP

The patient has been seen at regular intervals since the time of operation. Date of last examination, November 1941; at this time it was found that the hirsutism had disappeared, that the clitoris is markedly regressed in size and that the patient's voice is no longer masculine. She had not menstruated, but this, of course, is due to the

TUBEROUS SCLEROSIS

WITH A CASE STUDY

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AND

T. A. WATTERS, M. D.*

NEW ORLEANS

Tuberous sclerosis was described pathologically in 1880 by Bourneville¹ and Hartdegen² when they reported separately a rare form of cerebral sclerosis occurring in young mentally deficient patients suffering with epileptiform seizures. Some^{3,6} give Von Recklinghausen credit for an earlier description in 1863 when he described a case with myomas in the heart along with sclerotic areas in the brain. Bourneville named the disease tuberous sclerosis because of the potato-like masses found in the brain substance. Vogt⁴ first described the clinical syndrome as one of mental deficiency, epilepsy, and adenoma sebaceum.

Many cases of tuberous sclerosis have a positive family history of nervous and mental diseases. Convulsions, which are the first symptoms to appear, usually begin in the first year and continue throughout the

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Since the receipt of this manuscript Dr. Bryan has deceased.

life of the patient. The seizures are similar in all respects to either idiopathic or Jacksonian epileptiform convulsions. Mental impairment becomes evident at a very early age and may vary from imbecility to pronounced idiocy. Headache may or may not be present. The stance is usually unsteady and the gait is tottering, but there is no change in tone of the muscles. No sensory disturbances are present. The cases usually progress into a dementia and death takes place before maturity in status epilepticus.^{5, 6}

The condition is often accompanied by neoplastic growths in the brain, skin, kidneys, heart, bone, pancreas, optic discs and retinae.³ These tumors are usually undifferentiated embryonic neoplasms such as gliomas, hemangiomas, lipomas, mixed tumors and dermoid cysts. The skin lesions, adenoma sebaceum, by which the diagnosis is quite frequently made, consists of semiglobular nodules varying from red to brown in color and usually symmetrically arranged in a butterfly pattern about the nose in the nasolabial folds. Other skin lesions which have been described are fibromas, and oval or circular areas of pigmentation known as "café au lait,"⁶ spots. The neoplastic growths suggest a change in embryologic metabolism,⁶ especially in tissues of ectodermal origin.

Radiologic changes of diagnostic significance have been reported in tuberous sclerosis. Gottlieb and Lavine⁷ have described changes in the skull consisting of thickening, osteoporosis and mottling of the bones. In the bones of the extremities there is periosteal thickening and the metacarpal bones reveal areas of increased rarefaction suggestive of cyst formation. Changes in the lateral ventricles as revealed by pneumoencephalographic studies consist of mul-

tiply dense tumor-like areas projecting into the lateral ventricles.⁸ Another radiologic finding⁹ of diagnostic value is the multiple disseminated areas of intracerebral subcortical calcification, or the multiple "brain stones."

CASE REPORT

The patient, a 49 year old negro male, was admitted to the hospital through the Out-Patient Service, March 24, 1941. He acted as his own informant and stated that he came to the clinic because of spells. He gave a history of having had generalized tonic convulsions with loss of consciousness as long as he could remember. (Patient was unable to give exact date of onset). At times he would chew his tongue and become incontinent of both urine and feces. He described no aura with his convulsions which occurred on the average of two or three times a day; their duration being four or five minutes. When he entered the examining room, some semiglobular nodules about the nose were observed, which, he stated had been throughout his life. He entered school at six, learned to spell and read a little but never progressed beyond the first grade. He married in his early twenties, there being one child by this union. He separated from his first wife a number of years before coming to the hospital and was living in the home of his sister who looked after him. The above story was confirmed by the sister who added that the patient was able to dress himself and care for his daily habits, but was unable to work. Neither the patient nor his sister admitted any familial nervous or mental diseases, but it should be pointed out that this sister appeared to be intellectually inadequate.

Examination: Mental status examination on the day of admission revealed an elderly negro male who appeared much older than the stated age of 49. He was dressed in rather disreputable clothes, but was clean. He exhibited no abnormal behavior or activity in the waiting room or in the examining room. His speech was slow and at times he seemed to make up words similar to those used by the examiner. His face revealed a degree of sadness, but he stated that his spirits were "good." He did not smile during the entire examination. No abnormal content of thought was elicited. In examination of the sensorium he was found to be oriented as to time, place and person. He was able to retain four digits. His recent memory was fairly good but remote memory along with simple calculation and general information was extremely poor. His judgment and insight were also poor.

Psychometric tests* revealed a mental age of five years and seven months, and an intelligence quotient of 37, placing him in the imbecile group.

Neurologic examination revealed a patient who walked with a wide base and wobbling gait which appeared to be more from weakness or senility than from true ataxia. In the Romberg position he swayed a little. Coordinated movements were performed well and the muscular tone was normal. There was slight gross tremor of the hands. All tendon reflexes were present within normal physiologic limits. The abdominal reflexes were hypoaffective on the right and absent on the left. The Babinski sign was not present on either side. The muscular strength was poor but equal in all extremities. No abnormalities were noted in tactile, pain, temperature, vibratory or position sense. All the cranial nerves were intact. The pupils were round, regular and reactive to light. Arcus seniles were present. Ophthalmoscopic examination revealed no abnormalities of the retinae or maculae. The optic discs were well outlined and of normal color with no evidence of tumor nodules being present either about or on the nerve head. No tremor was observed about the mouth and he was able to perform the test phrases well with no apparent difficulty in speech.

The general physical examination showed a well developed and well nourished elderly negro male. No adenopathy was present. In the skin over the nose and cheek bones were numerous semiglobular nodules ranging from pinhead to pea size (fig. 1).



Figure 1. Photograph of patient showing the distribution of adenoma sebaceum of the face.

These nodules were very abundant in the region of the nasolabial folds. The color of the nodules was that of normal negroid skin except for slight increase in pigmentation. On the right cheek there was a soft tumor-like mass about 1 cm. in diameter lying beneath the skin, which was freely movable. Over the skin of the entire body there were areas of brown pigmentation about 1/2 cm. in diameter. Marked dental caries were present. Examination of the heart and lungs revealed normal findings. Blood pressure was 135/75. No scars were observed on the abdominal wall and there were no palpable masses felt in the abdomen. The genitalia were those of a normal adult male.

Laboratory: The voided urine was clear, pale yellow with a specific gravity of 1009, negative for albumin and sugar. The microscopic revealed a few leukocytes and bacteria. There were 5.25 million erythrocytes. The leukocyte count was 9200 with a differential of 58 per cent polymorphonuclear neutrophils, 2 per cent eosinophils, 1 per cent basophils, 2 per cent mononuclear leukocytes, and 37 per cent lymphocytes. The hemoglobin content was 13.9 grams. Both the blood Kline and Kolmer reactions were positive. The spinal fluid was clear and under a pressure of 120 mm. of water. The Queckenstedt reaction was normal, globulin negative and gold curve normal. There were less than ten cells per cubic mm. and both the Kline and Kolmer were negative. A biopsy from the skin in one of the nasolabial folds revealed an increase in connective tissue in the upper corneum, and in the deep region an increase in the number of sebaceous glands. Nevus cells and dilated blood vessels were also noted. The microscopic sections were examined by Dr. H. J. Schatzenberg in the Department of Pathology at Tulane, and he was of the opinion that the histopathology was compatible with the pathologic picture of adenoma sebaceum.

X-ray studies of the skull showed some granular mottling of all the bones of the skull. The occipital bone was rather thick but within the limits of normal negroid skull. The sella turcica was flattened but within normal limits. Above the sella turcica within the brain substance was a round symmetrical calcified mass 1 cm. in diameter, with a fuzzy border. The pineal body revealed deposits of calcium. Pneumoencephalograms revealed the ventricular system well filled, slightly larger than normal, and in the midline with no evidence of shifting. The lateral ventricles had lost their normal contour and in the floor there were small tumor-like masses projecting into the body (fig. 2 and 3). The second and third left metatarsal

*We are indebted to Miss Marion Font, Psychologist of the Division of Psychiatry, Department of Medicine, Tulane Medical School, for carrying out psychological tests.

bone exhibited marked periosteal thickening (fig. 4). No cyst formation was observed in any of the long bones of the skeleton.*

the floor of the lateral ventricles, small tumor-like masses can be seen encroaching upon the lumen of the ventricles.



Figures 2 and 3. A. P. and lateral encephalograms revealing the ventricular system filled with air. There is slight thickening and mottling of the skull bones. The calcified mass which was about 1 cm. in diameter is seen in both views. The ventricular system is slightly dilated and the lateral ventricles slightly distorted in shape. On

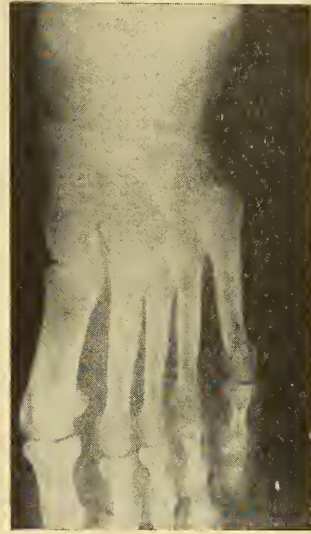


Figure 4. View of the left foot reveals slight periosteal thickening of the second and third metatarsal bones.

COMMENT

We feel that a diagnosis of tuberous sclerosis can be made clinically in this case because of a history of convulsions, mental retardation and adenoma sebaceum of the face. A significant family history is lacking. The radiologic observations exhibit nearly all of the classical changes occurring with this disease, namely, the mottling and thickening of the skull bones, "brain stones," candle guttering in the floor of the lateral ventricles and periosteal thickening of the long bones.

An interesting feature of the case is the man's stated age of 49, and his astounding ability to cope with his environmental situation in spite of his low mental age. Most cases of this disease succumb before the age of maturity.⁴

In the records of Charity Hospital there is only one other case diagnosed as tuberous sclerosis. It is one of a 16 year old female with mental deficiency, history of epilepsy since age of four and adenoma sebaceum of the face, which appeared at the age of 11. There was no familial history in this case. Laboratory examination was within normal limits and no positive radiologic findings were recorded. Pneumoencephalograms re-

*We appreciate the valuable help rendered by Dr. J. N. Ané of the Department of Radiology, Tulane Medical School, in interpreting the x-ray findings.

vealed slight symmetrical dilatation of the ventricular system. The records of Charity Hospital date back to 1907, and this indicates either a scarcity of the disease in this locality or a failure to recognize the entity.

CONCLUSION

We have reported a case of clinical tuberous sclerosis in a negro man 49 years old, who apparently is still in good physical health and with no evidence of psychosis. This case exhibits classical radiologic changes which are described.

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BILATERAL CORTICAL NECROSIS OF THE KIDNEYS

WITH A CASE REPORT

FRANCIS E. BRUNO, M. D.*
NEW ORLEANS

Bilateral cortical necrosis of the kidneys is fortunately a rare pathologic entity which is usually associated with pregnancy. While the pathologic changes in both the pregnant and non-pregnant patient are identical, bilateral cortical necrosis is not inevitably

associated with pregnancy. The disorder does occur in connection with other conditions so that it could readily become a source of concern to the internist, surgeon and urologist as well as to the obstetrician, although it is infrequently seen. Talbott,¹¹ in a review of medical progress on heterogeneous renal disorders, estimates that less than 100 cases have been reported in the literature. Ash,⁸ in 1933, discovered 60 cases in the literature, adding two additional cases of his own.

CASE REPORT**

Mrs. G. M., a 35 year old para I gravide II, was admitted to the ward service of St. Francis Hospital, Hartford, Connecticut, on March 15, 1941. Her last menstrual period was September 4, 1940, and the date of expected confinement was June 11, 1941. She had had no symptoms until two weeks prior to admission, when her ankles began to swell. For two days before entering the hospital she had been troubled by severe headache. There had been no visual disturbances. Because of these symptoms Mrs. M. consulted her private physician. After an examination she was told she had high blood pressure and albumin in her urine and was referred to the hospital, the impression being that she had "nephritic toxemia of pregnancy."

Upon admission the patient was drowsy and complained of headache. She was obese and examination of the abdomen was consistent with a five months pregnancy. There was marked pitting edema of the feet and lower legs. No abnormalities of the heart or lungs were noted. On rectal examination the cervix was soft and not dilated. The fetal heart was heard faintly, and was beating at a frequency of 146 beats a minute. The blood pressure was 198/116; temperature 98; pulse 74; respiration 20. Urinalysis; specific gravity 1.028; albumin 2+; 5 to 6 white blood cells and red blood cells.

The past history was significant inasmuch as it had revealed an earlier pregnancy, one year previous, which was complicated in the latter months by edema, albumin, and hypertension. On this occasion the condition was relieved after delivery of a male baby which survived only two days. There was no other history of antecedent nephritis.

Because of the edema and hypertension the patient received 100 c. c. of 50 per cent sucrose intravenously, and symptomatic treatment. On the day of admission, the total fluid intake was 800 c. c. and urinary output was 520 c. c. On the following day the intake was 1170 c. c. and the visible output was 30 c. c.

On March 17, the patient precipitately delivered herself of a stillborn premature infant. The placenta delivered spontaneously. There was no undue shock or loss of blood. After delivery, the tem-

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**I wish to acknowledge with thanks the permission granted by Sister John Marie and Dr. P. MacPartland of the record committee of St. Francis Hospital for allowing me to publish this case report.

perature rose to 101+ and the pulse rate increased. There was no obvious source of infection. Because of the oliguria the visiting urologist was consulted, who suggested the administration of continuous intravenous fluids. Despite the forcing of fluids, the urinary output was minimal. On March 19, because of the persisting oliguria, indwelling ureteral catheters were inserted by the consultant urologists. Despite heroic measures to promote diuresis and extrarenal sources of elimination the oliguria progressed to a true state of anuria. The patient expired on her seventh hospital day after a total anuria of two days and an ever deepening acidosis.

CHART

Date	Intake Total c. c.	Output (visible) c. c.	Blood Pressure	Albumin	CO ₂	NPN
March 15	800	520	198/116	solid		
March 16	1170	30	196/112	1+		
March 17	1450	100	192/110	no spec.		
March 18	3100	150	180/100	2+	36	42
March 19	3050	85*	168/80	2+		
March 20	2000	100†	210/80	no spec.	26	69
March 21	1500	0	210/90	no spec.	8	
*Voided.				†Vomited.		

*Autopsy**: The body was that of a well developed white female with general anasarca. The breasts were firm and colostrum could be readily expressed. The abdomen was free of striae gravidarum and surgical scars. Kidneys: The perirenal tissues were edematous and indurated appearing adherent to renal capsules by a film of fibrin. Both kidneys were identical in size, and normal in contour. The capsules were not thickened and through them the cortical surfaces appeared fiery red with blotches of extreme pallor mixed with small hemorrhagic spots. Cut surfaces of both kidneys were identical, the cortices appearing as zones of yellow white anemic necrosis into which deep red hemorrhagic "flame-shaped" areas streaked upward from the medullary portions. A thin line of cortex, directly beneath the capsules was likewise bright red in color. The pelves and upper two thirds of the ureters were hemorrhagic. The uterus was 14 cm. in diameter, dark blue, and hemorrhagic in color suggestive of a "Couvalier uterus." The lining was shaggy and bloody without gross evidence of infection. Cultures were negative. The adnexae were not remarkable. The

*Autopsy findings and the histologic description reported through the courtesy of Dr. L. P. Hastings, Director Pathological Laboratory, St. Francis Hospital.

liver presented no focal lesions either hemorrhagic or necrotic which might suggest eclampsia. The markings were indistinct and the tissue was pale.

MICROSCOPIC EXAMINATION

The kidney sections presented a striking picture. The capsule was hyperemic but not thickened, while directly beneath it was a microscopic zone of renal tissue which aside from hyperemia and edema was not remarkable. Beneath this was a wide zone of cortical tissue which appeared to have its histologic structure completely "wiped-out." Both the glomerular and tubular structures were visible only as shadows without cytology. Beneath this zone just above the medullary portion, the vessels including interlobular arteries were completely occluded by thrombi which appeared to be composed of fibrin and broken down erythrocytes. There were very few platelets or leukocytes visible in this material. This vascular occlusion extended throughout all branches, including afferent glomerular vessels. Beneath this zone there was less tissue destruction and the thrombosed vessels were clearly visible. The tubules were filled with hyaline material. Here the remaining glomeruli appeared to show more chronic lesions including cellular tufts which were adherent to their capsules. The liver, aside from slight degeneration about the central vein, showed no evidence of pathology. The spleen was deeply congested and throughout the sections the arterioles showed a well defined hyperplastic sclerosis. The uterus showed a lining marked by adherent blood and fibrin with fragments of spongy desidua but no evidence of inflammation, necrosis or exudation. The breasts presented typical gestational hyperplasia.

Sections of remaining organs added nothing to the pathologic picture.

DISCUSSION

The etiology of this interesting condition is unknown and various causal relationships have been ascribed since Juhel-Renoy² made the first reported observations. This case was one of a 16 year old girl who died of scarlet fever. Since that time the renal

lesions have been described as being associated with tonsillitis, periarteritis nodosa, diphtheria, pulmonary tuberculosis, peritonitis, malaria, grippe, cholera, cerebrospinal fever, pneumonia, burns, trauma, and following intravenous injections of camphor.^{3,8} Despite these dissimilar associated conditions, it has been variously estimated that pregnancy is the etiologic factor in 77 to 86 per cent of all cases.^{4,9} Penner and Bernheim³ unexpectedly observed gross renal lesions closely resembling bilateral cortical necrosis of the kidneys in dogs following the injections of epinephrine. They felt that the vasospasm occurring in a profound state of shock of sufficient duration might result in such lesions. No mention is made of the possibility of prior renal damage, such as might have occurred in the present case. Ash⁸ states that in order to explain the uniform picture seen in the kidneys some factors common to all cases must be present. In this connection he incriminates coagulation of the blood, alterations in blood pressure, specific toxins affecting the vascular endothelium or the renal-epithelium, ischemia from pressure, emboli originating in the placenta, liver or from fatty tissues as possible factors in the production of this pathologic state.

The typical case presents a toxemia-like state (toxemia of pregnancy or nephritic toxemia) with the patient dying of uremic coma as a result of a non-obstructive anuria. The most constant and characteristic feature is the development of an increasing oliguria which progresses to anuria. The small amounts of urine that are passed show varying amounts of albumin, casts and cells. In view of the impaired renal function the blood chemistry reveals an ever rising increase of nitrogenous products which may be demonstrated even at short intervals of time. By the time the oliguria has become alarming, edema begins to appear and accounts for a rapid gain of weight. The temperature is elevated, especially in the presence of bacterial infection but it often becomes subnormal in the later stages.¹⁰ The white blood count is

variable, great elevations being reported in some cases.⁹

Polayes⁷ states that the urinary suppression may occur abruptly without any prior abnormalities or even premonitory signs or symptoms of nephritis. When prodromal signs and symptoms do appear, they are those of eclampsia or nephritic toxemia, consisting of epigastric distress, and nausea or vomiting or both. Pain and tenderness⁵ in the kidney region or abdominal pain⁶ may presage the onset of the anuria.

About one-third of the patients have convulsions preceding or after delivery.⁷ However, there is a decided lower incidence of convulsions in this condition than in true eclampsia, and the patient may appear to be improved after the uterus has been emptied, despite the progressive anuria. Headache, apathy, and impaired vision are more apt to occur in the terminal or uremic phase.

The blood pressure is not constantly high. It is usually highest in the eclamptic type of case, but Ash⁸ found that of 23 patients the blood pressure was well within normal limits in 14. In three patients there was a reduction following the emptying of the uterus. It was felt that the anuria itself had but little influence on the blood pressure.

The pathology of the condition is covered most admirably in articles by other authors.^{7,9} Grossly, the kidneys are somewhat large, with a yellowish-grey and violet-red mottling. The capsule strips with ease. On section the cut surfaces reveal an irregular outer rim of cortex which is necrotic. The cortex is definitely lighter colored, being a greyish yellow, whereas the medulla is markedly congested and stands out in striking contrast to the ischemic cortex. Subcapsular hemorrhages have been described. Microscopically the cortex shows definite necrosis. Hyaline thrombi may be observed in the afferent vessels and fibrin thrombi have been reported in the loops of the glomeruli. The tubular epithelium in the affected area may show varying degrees of degenerative changes. The renal architecture is in general poorly outlined and al-

most devoid of nuclei in the involved areas of the cortex.

Bilateral cortical necrosis of the kidney as a strict pathologic entity is without exception a fatal condition. Ash⁸ states that so much essential tissue is destroyed that it is equivalent to a bilateral nephrectomy. However, if the condition is due to vasospasm it is conceivable that patients may recover if the pathologic changes have not progressed to actual necrosis.

The problem as to whether decapsulation is of value has been raised. It is possible that if it is done in the pre-necrotic stage, that extensive kidney damage may be avoided. It is felt that if the etiologic cause is sufficient to cause vasospasm of a degree and of a duration consistent with necrosis, then no therapeutic procedure can be of any avail. If the causative factor be increased, coagulation, or toxic effect on the endothelium or emboli from the placenta, liver, or fatty tissue, then it is most certainly true that decapsulation will be without benefit.

SUMMARY

A case of bilateral cortical necrosis of the kidneys occurring during pregnancy is reported. A brief survey of some of the literature relative to this condition is presented. Attention is called to the fact that bilateral cortical necrosis of the kidneys is a cause of non-obstructive anuria which may be a source of diagnostic concern to the urologist, internist and surgeon as well as to the obstetrician.

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SUBDIAPHRAGMATIC ABSCESS WITH PARTICULAR REFERENCE TO THE SURGICAL APPROACH*

JOHN G. SNELLING, M. D.

MONROE

Quite a number of articles on subphrenic abscess have appeared in literature in the past few years, but there still seems to be quite a great deal of discussion regarding the best method of surgical treatment. It is my purpose in this paper to review the subject briefly and to add 13 cases seen personally. Six of these cases were done at Charity Hospital in New Orleans, from 1928 to 1930, soon after Dr. Ochsner became Professor of Surgery at Tulane, and eight patients have been operated upon since I entered private practice at Monroe.

While subphrenic abscess is not a commonly occurring lesion, it is sufficiently frequent to warrant constant thought in dealing with surgical diseases of the abdomen. According to Ochsner and Graves, 70 per cent of the subphrenic infections, which are diagnosed from clinical manifestations, subside, and 30 per cent go on to ultimate supuration.

In a series of 972 cases of acute appendicitis reported by Neuhof, 15 resulted in subphrenic infection, an incidence of 1.5 per cent. It is well agreed that subphrenic abscess is primarily a complication of intra-abdominal suppurative processes. This fact is readily borne out in the review of 3,608 collected, and personal cases reported by Ochsner and DeBailey. The authors state that in 85 per cent of cases of subphrenic abscess, the primary lesion was intra-abdominal; while over half of subphrenic abscesses were the result of suppurative le-

*Read before the sixty-second annual meeting of the Louisiana State Medical Society, Shreveport, April 21, 1941.

sions of the appendix and perforating lesions of the stomach and duodenum. In this series of 3,608 cases, 30 per cent were appendiceal in origin and 28.7 per cent were of stomach or duodenal origin. In 75 cases reported, the origin from each was 25.3 per cent. The next most frequent primary focus was a lesion of the liver and biliary passage; these lesions were antecedent in 12.6 per cent of collected cases and 21.3 per cent of 75 cases reported by Ochsner and DeBakey.

A small per cent of subphrenic abscesses may be primary or of metastatic origin; this per cent may vary from 3.1 to 5.3. These abscesses may also be the result of extension of thoracic lesions into the subphrenic space; this did not occur in any of the 75 cases reported by Ochsner and DeBakey, but was found in 2.5 per cent of 3,533 collected cases reported by these authors. Trauma may also be a rare etiologic factor. It was found in 2.1 per cent of collected cases and 1.3 per cent of Ochsner and DeBakey's series.

Reviewing my small series of cases, I found three followed perforating appendicitis, three perforated lesions of the stomach and duodenum, two extension of liver abscesses, four traumatic and one primary. It is generally agreed that the organisms most frequently found in subphrenic abscess are the colon bacillus, streptococcus and staphylococcus, with some variation of percentages reported by various authors.

In a report by Lehman and Archer, colon bacillus was present in 29.4 per cent; streptococcus 23.4 per cent; staphylococcus 23.4 per cent. Ochsner and Graves report *B. coli* present in 40 per cent, streptococcus 40 per cent and staphylococcus 20 per cent.

There are five possible routes of spread of infection of intra-abdominal foci to subphrenic areas: (1) By direct spread of contaminated fluid in the course of peritonitis; (2) by direct contamination with infected fluid from a ruptured hollow viscus in the nearby area; (3) via the lymphatics or retroperitoneal cellulitis; (4) by a penetrating wound or traumatic injury to the liver or subphrenic space; (5) by rupture

of liver abscess. Extension of a thoracic lesion has already been mentioned. It seems to me that the route is not so important as is early recognition of subphrenic infection, immediate institution of conservative treatment, and early surgical intervention when indicated. The question of preventing subphrenic infection in the face of definite diffuse intra-abdominal lesions has been stressed by many authors. One of the measures most frequently used is the Fowler position—in all cases where there has been gross contamination of the peritoneal cavity. I feel that this is a good procedure and yet I have seen subphrenic abscess develop often where this part of the treatment was consistently carried out. I feel, therefore, that the majority of subphrenic infections reach this area by way of the lymphatics. Treusdale has clearly shown that the mode of infection is most frequent through the lymphatics of the peritoneal cavity, particularly those running from the ileocecal region.

DIAGNOSIS

The question of diagnosis has been made to appear quite simple by some authors and, while I do not agree that the differential diagnosis is by any means simple, I feel that if it is constantly borne in mind that subphrenic infections not infrequently follow suppurative intra-abdominal lesions. An early clinical, laboratory and x-ray study will reveal the cause of continued sepsis to be a subphrenic abscess.

In any patient showing signs of continued sepsis where a primary focus has been adequately handled and one feels that the patient should be showing definite improvement and where no other definite focus of infection can be determined, a tentative diagnosis of subphrenic abscess might be made and diagnostic measures instituted. In addition to the clinical and laboratory manifestations of continued sepsis, the local physical signs of pain and tenderness on the affected side are frequently present. A few patients complain of pain in the supraclavicular region of the neck or right shoulder; pain and particularly tenderness over

the lower ribs on the affected side is one of the most constant signs of subdiaphragmatic abscess. On fluoroscopic examination, the diaphragm on the affected side is found to be elevated and a varying degree of fixation is present.

Lewald, Pancoast and Granger have shown that the greatest single aid in helping to make a diagnosis of subphrenic abscess is a series of roentgenograms, preferably views should be taken in all directions, that is, posteriorly, laterally and obliquely. They should be taken with the patient in an erect and supine position, and during inspiration and expiration. Under this regimen, if subphrenic abscess is present, these views should show an elevated and motionless diaphragm; cloudiness of the costophrenic sinus and a change in the cardiophrenic angle. Below the diaphragm there is a dense shadow. In 15 to 30 per cent of these, a gas bubble is demonstrable (Elsberg and Berman). Elsberg and Berman show 15 per cent; Ochsner and DeBakey show 30 per cent. When this sign is present, it is of pathognomonic significance, but its relative infrequency should be borne in mind.

A number of authors in the past have advocated aspiration, but I feel that this procedure should never be done except at time of operation after the suspected area has been exposed to direct vision or to such extent that one may be definitely certain of not entering the pleural or peritoneal cavities.

I feel that the procedure of extraperitoneal and exploration under local anesthesia is comparatively simple and non-shocking, and where the diagnostic methods other than aspiration are suggestive enough to warrant it, this procedure should be carried out.

TREATMENT

At the present time, there are two types of drainage procedure which are advocated by many surgeons. One group of surgeons advocate transthoracic, extraserous approach. McWhorter has recently readvocate this procedure. Other groups still advocate the transthoracic and transerous route, attempting to prevent contamination

of the chest by suturing the costophrenic surfaces of the pleura together or packing the wound and awaiting adhesions to develop and subsequently incising through this area. The mortality rate in this procedure is extremely high. Elsberg reports a mortality rate of 36 per cent.

Lehman and Archer report a case of massive perforated abscess into the pleural cavity while waiting for the adhesions to be formed in the packed area. DeBakey and Ochsner report that 16 cases in the group of 75, which were drained transpleurally, show a mortality rate of 50 per cent.

The transperitoneal route of drainage is equivalently disadvantageous because peritonitis frequently results. In 327 collected cases in which transperitoneal drainage was done, 113 resulted fatally, a mortality rate of 35 per cent.

In 275 cases reported by Ochsner and DeBakey, 14 were drained by transperitoneal route, six terminated fatally, a rate of 42.8 per cent. Nine of these were drained through limited adhesions; five drained through involved peritoneum, all of these with fatal results.

Without enlargement on the choice of procedures, it seems to me obvious that the extraserous extraperitoneal route is by far the best procedure advocated to date.

PROGNOSIS

The prognosis depends on many factors; the time elapsed from the beginning of the infection to starting treatment is most important. As a result of delay in diagnosis, the patient may die of sepsis; the longer the delay the more probable that thoracic complications will develop. In a series of cases reported by Lockwood, 41.9 per cent had intrathoracic complications; in a series reported by Beye 45 per cent had intrathoracic complications. Gatewood reported seven cases which developed empyema, five of which died. In a series of 50 cases reported by Ochsner and Graves, 52 per cent showed thoracic complications, whereas 18 per cent showed none. The types of drainage used are found to have definite effect on the prognosis. I think this needs no ex-

planation as this part has been covered and discussed adequately in literature and in this paper. For the details of technic of the extraperitoneal procedure, refer to the article by Ochsner and Graves in the *Annals of Surgery*, December, 1933.

SUMMARY

I have used the extra-pleural, extraperitoneal route for drainage in all cases. The twelfth rib was resected and the posterior approach used in all but two which involved the right anterior space. Out of the thirteen patients operated upon there was but one death—a mortality rate of approximately 7.6 per cent.

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DISCUSSION

Dr. Alton Ochsner (New Orleans): Subphrenic abscess, as brought out, is a condition which occurs much more frequently than is commonly thought, and because it carries a high mortality rate if not correctly treated. Dr. Snelling emphasized the important part of diagnosis, namely recognizing the condition. If the patient has an intra-peritoneal abscess and fever, one will consider abscess in the subphrenic space. If carefully checked the incidence of incorrect diagnosis will be lowered.

This operation is purely an anatomic one based upon the anatomic relationship of the costophrenic angle to the twelfth rib and spinous process of the first lumbar vertebra. You will see in the first drawing the costophrenic angle covers half of the twelfth rib; in the next drawing it is above the

twelfth rib, and in the last drawing the twelfth rib is covered by the costophrenic angle. If one took the twelfth rib as a landmark there would be danger of injury to the pleura; if a spinous process of the first lumbar vertebra is taken as a landmark and a transverse incision is made from that point, the pleura will be missed.

The technic used is to make incision parallel to the twelfth rib, which is resected. Following this a transverse incision is made through the bed of the twelfth rib at the level of the spinous process of the first lumbar vertebra. After incising through diaphragm, one then has access to retro-peritoneal space and can see the liver. If one suspects an infection of the right inferior space which is present in about 15 per cent of cases, one can aspirate the area. If suppuration is suspected in the right posterior space which is most frequently involved, the peritoneum is peeled off the inferior surface of the diaphragm. This is done readily and can be done easily in a normal individual; it can be done on a cadaver; and is particularly easy in subphrenic edema. After abscess is reached, one plunges the finger through the abscess wall and drains the cavity extraperitoneally. In inferior space infections one drains through the same incision.

Dr. Snelling called attention to the method of drainage of the right anterior space abscess. This method consists of incision along the costal margin down peritoneum and peeling the peritoneum from the diaphragm until the abscess is reached and then drained.

Dr. DeBakey and I, in going over these subjects, checked 322 cases and found that the appendix was the principal offender. Some were in the duodenum, liver, and bile passages, metastatic process was frequent.

As regards localization, most are on the right side, relatively few are retroperitoneal. About one-fourth are on the left side, and a small percentage are combined.

In transpleural drainage, which is most popular and yet a dangerous procedure, the mortality is about 38 per cent. Transperitoneal drainage gave a mortality almost as high. Extraperitoneal drainage, on the other hand, resulted in few fatalities. In the Charity Hospital it was shown that the mortality rate decreased when the incidence of extraperitoneal drainage increased.

Dr. John G. Snelling (In closing): There is only one point that I want to emphasize in closing and that is that the mortality rate in transthoracic drainage runs anywhere from 30 to 50 per cent, borne out by a number of different authorities. The mortality rates shown by Ochsner and Graves and Ochsner and DeBakey and my own series clearly indicate that the extrapleural, extraperitoneal method of draining subphrenic abscess will materially lower the mortality.

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THE NEW OFFICERS

It is indeed a pleasure for the Journal to comment upon the new officers of the Louisiana State Medical Society who are elected at the regular annual meeting. Always they represent men who have taken an active interest in the Society, who have the welfare of the Medical Society at heart, and who are prominent in their community.

The new president, Dr. Emmett Irwin, as president-elect last year, was described in

the Journal as a man of delightful personality, of outstanding reputation as a surgeon and one who had held the presidency of the Orleans Parish Medical Society. For the coming year we give to Dr. Irwin all best wishes. He takes office at a time when this country is at war and at a time when there are innumerable problems to be solved in medico-military matters. As president-elect Dr. C. C. deGravelles of New Iberia, was selected. Dr. deGravelles graduated from Tulane in 1910 and since that time has been one of the successful practitioners of medicine in the state. He has served on numerous committees of the State Society and for the past few years has been a Councilor from the Third Congressional District. Dr. deGravelles is well known throughout the southern part of the state. He has built for himself a splendid reputation, further evidenced by his selection as chairman and consultant in internal medicine on Medical Advisory Board No. 5 of Selective Service.

Dr. J. T. O'Ferrall of New Orleans, an orthopedic surgeon of fame and repute and an active worker in organized medicine, was selected as first vice-president. One of the younger medical men in the state, Dr. W. V. Garnier was chosen to succeed Dr. Alsobrook. Dr. Garnier, of Bastrop, attains this position not only because he is an excellent doctor but also because of his always pleasant and agreeable personality. Dr. E. H. Lawson, formerly president of the Orleans Parish Medical Society, was picked as third vice-president because he too has done much for organized medicine and is a man who gets along well with all those with whom he comes in contact.

Two of the four state Councilors were re-elected: Dr. H. E. Bernadas of New Orleans, to represent the First District, and Dr. M. D. Hargrove of Shreveport, to represent the Fourth. Dr. C. Grenes Cole, of New Orleans, a past president of the State Medical Society, was chosen as Councilor of the Second District and Dr. John G. Snelling of Monroe for the Fifth District. I believe it would be difficult to find four men better qualified to fill the important

positions of Councilors of the State Medical Society.

The newly elected committees are composed of men who will bear their share of the burden of running the State Society cheerfully and effectively. Dr. P. T. Talbot, Dr. Edgar Hull, and Dr. R. T. Lucas of Shreveport compose the new Committee on Scientific Business. Dr. Roy B. Harrison was re-elected as chairman of the Committee on Public Policy and Legislation and associated with him will be Drs. Rhett McMahon and C. G. Cole, and the president and secretary-treasurer ex-officio. This Committee will have a particularly important role to play within the next few months at the present session of the Legislature. Their responsibilities will be great but they will be carried out efficiently. Dr. Clarence B. Erickson of Shreveport was elected for a term of three years on the Committee on Medical Defense. The Journal Committee will be composed of practically the same members as last year. Dr. J. K. Howles was selected to succeed himself and to replace Dr. Perkins who has left New Orleans, the House of Delegates selected Dr. D. I. Hirsch for a term of one year. Under the able supervision of the Journal Committee it is hoped that the same high standards will be maintained by the Journal as the Journal Committee has insisted upon in past years.

One can foresee for the coming year difficulties, disappointments and maybe disasters. The lot of the officers for the coming year will be hard. Many will be the problems never before presented which will have to be solved. The Journal has every confidence that our State Medical Society will be in the executive hands of those who are well qualified in every respect to see the organization through difficult times.

THE PHYSICIAN AND STATE MEDICINE

Dr. William J. Mayo was a surgeon whose name and fame will be long lived. Dr. Mayo's reputation is based on his accomplishments and these were made possible because he was a man of broad vision, ex-

treme intelligence and remarkable administrative and executive ability. In considering the subject of state medicine, he at one time wrote most pointedly that he was against state medicine because it encouraged mediocrity, because it would inevitably become politicalized, and because it was far removed from the high ideals of the medical profession. These statements of a great thinker as well as a great accomplisher merely echo the feeling of the average doctor in medical practice in the United States. It is his contention that state medicine, if it should ever come to pass, would encourage a civil service mediocrity in which individuals obtain positions, sit back on their haunches and do not do very much more than actually has to be done in order to meet the requirements of the position. To any one who has had the opportunity of working in a governmental position and seeing from the inside the workings of state departments of various kinds, one would realize that politicalization is extremely likely to ensue even if the chief executive is doing his best to prevent this very thing from occurring.

One of the beauties of the medical profession is the high spirit of idealism which permeates the healing professions. The doctor and the nurse give his or her very best efforts when sickness arises. They do it often with a spirit of altruism which is not surpassed by any other profession. The doctor considers only the sick man and what should be done for him and in his care of the sick he is guided by the traditions of his profession. The patient-physician contact is of extreme importance. The personal relationship between the two is one that is bound by a common bond. It is very hard and difficult indeed to visualize any idealism in the care of the sick person or in the conduct of a profession in which orders are given from headquarters, in which the patient becomes a number and not an individual, and in which there will be lost the intimate relations that now exist between the doctor and his patients.

Doctors of medicine feel that they are doing a good job now, they believe that few,

if any, in this country suffer from lack of medical care and they do not feel that the present professional set-up, which gives the best medical service of any place in the world to its citizens, should be disrupted or should be destroyed.

EXTRINSIC CAUSES OF HEART PAIN

In a recent article Gilbert* writes there are many clinical observations associated more particularly with angina pectoris for which it is difficult to obtain an explanation on the basis of intrinsic anatomic changes in the coronary blood vessels. Many of these symptoms can be explained by assuming certain vasomotor changes in the size of the vessel, diminishing flow-volume. A decrease in the flow apparently happens as result of autonomic stimuli from various organs with the result that diminution of coronary flow from these extrinsic factors may result in a diminished blood supply comparable to that which results from the intrinsic factors, namely the pathologic changes in vessel walls, which limit coronary flow when there is demand for additional blood. The intrinsic factors of course are not reversible but the extrinsic are and they may be minimized or done away with entirely.

The author points out it is quite generally accepted that the vagus has a tonic vasoconstrictor effect on the coronary vessels and that constrictor impulses are carried by this nerve. On the other hand, vasodilator impulses pass through the sympathetic fibers. Recognizing these factors it becomes comparatively easy to explain why the pain of angina pectoris may occur as result of certain functional changes in the body seemingly far removed from the heart. Anginal pain after eating is frequently observed, possibly as result of the increased work that the heart is called upon to carry out during the first period of digestion but this does not explain why the pain disap-

pears when gas is belched or why it occurs at one time and not under similar conditions at another time in the same individual. This pain is probably due to reflex vasoconstriction as has been shown experimentally. A distended stomach in the experimental dog produced a marked decrease in coronary flow but this lessened coronary flow was done away with if atropine was given or if the vagi were sectioned. In his experimental work Gilbert has noted that distention of the abdominal cavity will produce the same results. He has observed also that anginal pain may occur when a low oxygen mixture is inhaled by the patient subject to angina. This pain disappears immediately when pure oxygen is given. The low oxygen pain occurs more promptly after a meal than when the stomach is empty. The pain is deferred by atropine, indicating that it is an intrinsic increase in vagal tone which produces the pain. Incidentally, the decrease in coronary flow was greatest if the cardiac end of the stomach was dilated. This may serve to explain why anginal pain so frequently disappears when a hiatus hernia is relieved by operation.

It has been shown, furthermore, that coronary vasoconstriction may be dependent upon stimuli originating in the esophagus. Here is the explanation for the attacks of angina which are brought on by swallowing. Other changes, mechanistic in type, may be produced in the same way, as for example, Stokes-Adams attacks.

It is well known that angina pectoris and coronary symptoms are associated with gallbladder disease, which symptoms are relieved by operative procedures. Gilbert has shown that there is a decrease in the coronary flow when the gallbladder is distended or when there is irritation of the bile ducts which does not occur if vagotomy is done or if atropine is given. It is well known that angina pectoris is often associated with duodenal ulcer, spastic colon or diverticulosis of the colon. Certain experimenters have shown that vagal reflex may originate in the colon as well as the gallbladder. Others have demonstrated that coronary vasoconstriction may be associated with the

*Gilbert, N. C.: Influence of extrinsic factors on the coronary flow and clinical course of heart disease, *Bull. New York Acad. Med.*, 18:83, 1942.

entrance of an embolus in the pulmonary vessels, a reflex mediated through the vagus. These observers believe that coronary vasoconstriction produces death in many cases of pulmonary embolism and that it is not always due to asphyxiation or right heart failure.

The author brings out many other interesting explanations for anginous pain which is dependent upon extrinsic factors rather than upon the pathologic change within the blood vessel wall. It is obvious

that these extrinsic factors which have a tendency to decrease coronary flow often can be done away with or at least minimized so that the anginal pain is not as severe as it was prior to the institution of proper treatment. Incidentally, in questionable cases it might be advisable to make use of the drug atropine with its vagus inhibiting effect in order roughly to test the patient so as to determine whether or not extrinsic factors are in part responsible for the heart pain.

HOSPITAL STAFF TRANSACTIONS AND CLINICAL MEETINGS

TOURO INFIRMARY New Orleans

The regular monthly meeting of the Medical Staff was held on Wednesday, May 13, at 8 p. m. The following program was presented: From the Department of Medicine Dr. Walter Culpepper discussed the patients who were in Touro suffering from typhus fever since 1934. Drs. Evri Mendel and Martin Kaplan represented the Department of Pediatrics and reported 150 cases of premature mortality. Dr. Evri Mendel, representing the Department of Gynecology, gave a case report on ligation of the vena cava.

OCHSNER CLINIC New Orleans

At a staff meeting of the Ochsner clinic held in February, the following article by W. G. Sawitz, M. D., was presented.

THE DIAGNOSIS OF AMEBIASIS THE SIGNIFICANCE OF A NEGATIVE STOOL EXAMINATION

In amebiasis, the clinical manifestations are too protean to permit a specific diagnosis. The blood picture is usually unchanged and, although serologic reactions are feasible, they are not practicable at the present time. It is unknown whether skin sensitivity, agglutinins or precipitins are present. Complement-fixing antibodies have been demonstrated by Craig, and, in his hands, the complement-fixation test has given reliable results. The high specificity of the test, however, has not been confirmed by other workers. The difficulty with serologic tests in amebiasis lies in the preparation of antigen of consistent potency and stability. In 1942, Craig commented that the complement-fixation test is inferior, as a diagnostic test, to the microscopic examination of the stools.

The fecal material available for such examination is the normally passed stool, feces passed after purgation, and material obtained from rectal or sigmoid lesions by means of sigmoidoscopy. The material is examined either by one of the direct

fecal films, or by concentration, that is, the zinc sulphate centrifugal floatation, or by a combination of these technics. Each of the materials to be examined, as well as each of the technics employed, has advantages and disadvantages. Liquid or semi-liquid specimens contain only the trophozoite stage of the amebae, and formed stools only cysts. Semi-formed stools may contain both. Trophozoites are diagnosed only by direct fecal technics, while concentration methods can be employed for cysts. Present culture methods for *E. histolytica* from stool specimens are not of great diagnostic efficiency.

Sigmoidoscopy is quite efficient in collecting amebae from lesions in the sigmoid or rectum. However, not all amebiasis patients show lesions in this area. Clark found lesions in the rectum in 71 per cent of 186 autopsy cases who had died of amebic dysentery or its complications. The percentage of involvement of the rectum or sigmoid in patients having latent or mild amebiasis probably is much lower. This is illustrated by Faust's study of the colons of 202 accident cases. Thirteen of these were found to have amebiasis and they showed a much more extensive involvement of the cecum-appendix area than of the sigmoid-rectum. Craig estimated that amebic lesions occur in the sigmoid or rectum only in about 30 per cent of those infected. On this basis, sigmoidoscopy is of value in establishing a diagnosis in only 30 per cent of amebiasis patients, and 70 per cent are likely to be missed.

A stool passed after a saline cathartic will contain trophozoites and occasionally cysts from the intestinal wall from the ileo-cecal valve on. One purgative stool examination is likely to detect about 45 per cent of those actually infected. The low percentage is due to the fact that mainly trophozoites are to be found in purgation stools and no concentration technic for these is available. Nevertheless, the percentage is higher than achieved by any other single technic. The disad-

vantage is that after purgation the amebae disappear from the following stool specimens and do not reappear for three to six days. Thus, the purgation cannot be followed successfully by examination of immediately passed stools. The procedure should be reversed and normally passed stool specimens examined first. Here we have the advantage of being able to employ concentration technics in addition to the direct fecal technics. The disadvantage, however, is that the amebae are highly diluted in feces. The efficiency provided by the examination of a single stool is rather low and suggests that protozoa are not evacuated in consistent numbers with each stool. Such a quantitative fluctuation has actually been demonstrated. The cycle between two high tide periods runs between four and 14 days, and the necessary four to five examinations should cover a period of about 10 days, that is, be repeated every other day.

The examination of three normally passed stools followed by the examination of a purgation stool and eventually even followed by proctoscopy will detect more than 90 per cent of the positives. Ac-

tually, we are not dealing with a group of positives and thus the efficiency rate on the basis of the positives is misleading. Of practical interest is the reliability of a negative report. A correct positive diagnosis depends solely on the proficiency of the examiner, and under this assumption is a certainty. The reliability of a negative result, however, depends on the efficiency of the technic of examination employed and the prevalence rate of the infection. Although the prevalence rate of amebiasis in a particular group is not known, it seems safe to assume that it is approximately 10 per cent in the United States.

On this basis, the reliability of a negative stool examination in the diagnosis of amebiasis when the prevalence rate is 10 per cent and the direct fecal film and zinc sulphate floatation are employed, is as follows: The negative result has a reliability of 0.93 if proctoscopic material, of 0.95 if purgation stool, of 0.95 if three normally passed stools, and of 0.99 if three specimens followed by purgation stool are examined.

TRANSACTIONS OF ORLEANS PARISH MEDICAL SOCIETY

During the month of May the Society held one regular scientific meeting. The program was as follows:

Embryological Factors in Pelvic Thrombophlebitis—By invitation, Dr. Edward Nelson.

Thrombophlebitis of Pelvic Veins Following Vaginal Hysterectomy—Ligation of Vena Cava. By Dr. Conrad Collins and Dr. Jack Jones.

Thrombophlebitis of Pelvic Veins Following Criminal Abortion—Ligation of Vena Cava and Ovarian Veins. By Drs. Conrad Collins and Jack Jones.

NEWS ITEMS

Dr. E. A. Bertucci presented a paper on Tuberculosis Control in the Child of School Age at a recent meeting of the Catholic Nurses Guild.

Dr. Donovan C. Browne recently attended a meeting of the American College of Physicians at St. Paul. Dr. Browne has been elected a Fellow of this organization.

Dr. Albert E. Casey addressed the Beta Alpha Chapter of Beta Beta Beta at a recent annual reunion of this organization. Dr. Howard R. Mahorner and Dr. Gordon McHardy also attended this meeting.

Dr. Walter J. Otis presented a paper on Electrical Shock Treatment in Certain Neuropsychiatric Conditions at the May scientific meeting of the Mercy Hospital Staff.

Dr. B. Bernard Weinstein gave a paper on the Synthetic Estrogens in Gynecology at a recent meeting of the Epsilon Chapter of the Phi Lambda Kappa in Charlottesville. Dr. Weinstein was recently elected to membership in the American Association of Anatomists.

Drs. H. B. Alsobrook, Philips J. Carter, Conrad Collins, Peter Graffagnino, E. L. King, Oran V. Prejean, Joseph W. Reddoch, and Thomas B. Sellers attended the Second Congress of the American Obstetric and Maternal Welfare Society at St. Louis, April 6-10.

CALENDAR OF MEETINGS

- June 1. Orleans Parish Medical Society, Board of Directors, 8 p. m.
- June 2. Eye, Ear, Nose and Throat Staff, 8 p. m.
- June 3. Clinico-pathologic Conference, Charity Hospital Morgue Amphitheater, 1:30 p. m.
Hutchinson Memorial Clinic Staff, 8 p. m.
Mercy Hospital Staff, 8 p. m.
- June 4. Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.
Baptist Hospital, Executive Meeting, 8 p. m.
- June 8. Orleans Parish Medical Society, 8 p. m.,
Scientific Meeting.
- June 10. Clinico-pathologic Conference, Charity Hospital Morgue Amphitheater, 1:30 p. m.
Touro Infirmary Staff, 8 p. m.

- June 15. Hotel Dieu Staff, 8 p. m.
Clinico-pathologic Conference, Baptist Hospital, 8 p. m.
- June 16. Charity Hospital Medical Staff, 8 p. m.
- June 17. Clinico-pathologic Conference, Charity Hospital Morgue Amphitheater, 1:30 p. m.
Charity Hospital Surgical Staff, 8 p. m.
Clinico-pathologic Conference, Hotel Dieu, 8:15 p. m.
- June 18. Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.
- June 19. I. C. R. R. Hospital Staff, 12:30 p. m.
- June 23. Baptist Hospital Staff, 8 p. m.
- June 24. Clinico-pathologic Conference, Charity Hospital Morgue Amphitheater, 1:30 p. m.
French Hospital Staff, 8 p. m.
- June 25. Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.
- June 26. L. S. U. Faculty Club, 8 p. m.
New Orleans Hospital and Dispensary for Women and Children Staff, 8 p. m.

LOUISIANA STATE MEDICAL SOCIETY NEWS

C A L E N D A R

PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
East Baton Rouge	Second Wednesday of every month	Baton Rouge
Morehouse	Second Tuesday of every month	Bastrop
Orleans	Second Monday of every month	New Orleans
Ouachita	First Thursday of every month	Monroe
Rapides	First Monday of every month	Alexandria
Sabine	First Wednesday of every month	
Second District	Third Thursday of every month	

REPORT OF THE HOUSE OF DELEGATES TO THE GENERAL ASSEMBLY OF THE LOUISIANA STATE MEDICAL SOCIETY

1942 MEETING—HOUSE OF DELEGATES
LOUISIANA STATE MEDICAL SOCIETY
April 27-30

Minutes of 1941 meeting of House of Delegates adopted.

Minutes of Executive Committee meetings since 1941 meeting adopted.

The amendment offered at the 1941 meeting *in re Medical Defense* to amend *Section four of Chapter IV of the By-Laws* concerning medical defense, in which it is stated "the committee shall have full authority governing all matters pertaining to Medical Defense features of this Society . . ." to state "making it mandatory for this committee to employ a local counsel for the doctor in difficulty"—was tabled.

Motion was made and carried that the motion in re amendment to *Section 8 of Chapter VIII of the By-Laws* concerning approval of the Executive Committee of actions of the *Journal Committee*, be tabled and that a vote of confidence be extended the *Journal Committee*.

Amendment to *Section 1, Chapter IX of the By-Laws* in re *increase of dues* to \$8.50 was approved.

Amendment to the *Charter (Article V)* to state that the *secretary-treasurer* shall be elected for a term of not more than five years, was voted upon

by members registered at the meeting, and approved.

Amendment to *Section 6 of Article IV of the Constitution* so that members may become *inactive members* by recommendation of the Executive Committee, will be acted upon at the 1943 meeting in order to comply with procedure for amending the Constitution.

Reports which contained recommendations were acted upon as follows:

President—1. That the Walter Reed Memorial be made to include the whole personnel which composed the commission, with due acknowledgment of the work of the physician whose theory was established by this historic medical mission—Approved. 2. That the amount of increase in the dues allocated to the Indigent Physicians Fund be turned over to the general fund—Not approved. 3. Efforts have been made to make the scientific program more inclusive with the policy of having the Society sponsor all branches of scientific medicine. The objective has probably not been fully realized, but progress has been made and it is recommended that in the future the idea be further developed.—Approved.

Committee on Report of the Secretary-Treasurer—1. That an attempt be made to increase our membership among the licensed doctors of the state to help defray the expenses of operating the organization. 2. That some means be found to eliminate the deficit which will exist in our So-

ciety, indicated by the present budget—1 and 2 approved.

Councilor of Third District—1. That the monthly obstetrical meetings which have been held at the Lafayette Charity Hospital in the past be continued—Approved.

Committee on Cancer—1. To reaffirm the activities of the Cancer Committee—Approved. 2. To appropriate one hundred dollars (\$100.00) for expenses for the year 1942—Referred to Budget and Finance Committee. 3. That this committee be authorized to cooperate with the State Board of Health in establishing a Division of Cancer in that organization—Approved. 4. That the Secretary-Treasurer write letters of appreciation to the editors of the New Orleans, Baton Rouge, Lake Charles, Monroe, Alexandria and Shreveport newspapers for articles published on cancer; also to the managers of broadcasting stations in these centers for the generous allocation of time to members of the profession and Field Army officers—Approved. 5. That a letter of thanks be sent to Drs. C. L. Mengis and John H. Musser, Director and Past Director of the Louisiana State Department of Health for the donation of space in the New Orleans Medical and Surgical Journal for the publication of monthly articles on the subject of cancer—Approved.

Committee on Care of the Indigent Physician—1. That ten dollars a month, per member, be contributed to ten indigent members from the Indigent Physician Fund—Approved.

Committee on Expert Testimony—1. Your committee does not wish to burden you with a review of the entire matter, as the needs governing the subject are well known to all. The following topics of interest are emphasized, and it is suggested that the incoming Committee on Expert Testimony be directed to begin at once to formulate rules and regulations governing the giving of expert testimony over the entire state. That this committee consult with the attorney of the State Medical Society and seek his advice and that said committee also consult with one or more of the Civil District Judges seeking their opinion from the judges' standpoint—Approved. 2. It is further recommended that the new committee discuss the matter of possible discipline for members of the State Medical Society if expert testimony is given upon a contingent basis—Approved. An amended motion was offered, voted upon and carried, that a copy be mailed to the secretary of each component society. 3. That it consider the qualifications of specialists and any other medical men who give expert testimony. Shall they be diplomates of specialty boards or members of such organizations as the American College of Surgeons?—Rejected. 4. That a minimum fee be established for expert testimony. That fees be established for medical members of commissions appointed by the several criminal courts and a method be devised to have the

parishes guarantee the payment of such fees—Rejected. 5. That in view of the confusion with reference to the many changes being made in the laws of the state by the Courts versus the Reorganization Commission, this Expert Testimony Committee be cognizant of these recent changes as they occur and be governed thereby in making recommendations—Rejected. 6. That when final regulations are adopted by this State Medical Society a copy of same be sent to the Parish Courts for their information—Rejected.

Committee on Hospitals—1. There should be set up in each general hospital a certifying unit under the supervision of Social Service Workers, the personnel of this unit to consist of qualified workers not necessarily university graduates in social service—Approved. 2. As the basis for deciding those eligible for treatment in the hospitals the following minimum standard, as now adopted by the Charity Hospital of New Orleans, would be submitted to the Department of Institutions for consideration and possible modification, as local conditions in various communities might make necessary. Whatever basis would be decided on for a local hospital, however, would be after there had been consultation with the medical profession. At present the minimum standard adopted at Charity Hospital is, single persons, income \$75.00 per month; couples living together, \$100.00 per month, \$15.00 allowed for each child or dependent—Rejected. 3. The foregoing regarding certification is intended in no way to replace the referral of any patient to the hospital by members of the medical profession; and it is further requested that the medical profession will refer only indigent patients to the Charity Hospitals of Louisiana—Approved.

Committee on Maternal Welfare—1. That midwives should fulfill the following requirements: (a) Trained for midwifery in a recognized school of midwifery—Rejected. (b) Must pass routine examination by Louisiana State Board of Medical Examiners—Approved. (c) Must work, in each parish, under the supervision of a committee composed of two members of the medical society and a parish health officer of that area, this committee to be directly responsible to the Louisiana State Board of Medical Examiners for the activities of the midwives—Rejected. 2. That a full-time man be appointed in the various state hospitals to start a complete set of residencies so that such institutions will be furnished with a source of supply for the future without resorting to securing out-of-state men to fill these positions—Referred to the Committee on Hospitals and the State Board of Institutions. 3. That the State Society confer with the State Board of Institutions, through its representative, Mr. Claude Harrison, to obtain more co-operation from the superintendents of the State Hospitals to carry out requests of the State Maternal Welfare Committee to further its aim in reducing maternal mortality in the state—Ap-

proved. 4. That the committee be given the power to consult with the assignment and procurement service in regard to the question of obtaining deferment of possible appointees to the residencies in obstetrics and gynecology in the various state hospitals—Approved. 5. That a conference between the State Board of Medical Examiners be arranged with the representatives of the State Board of Health and the State Maternal Welfare Committee to see if the law in regard to midwifery could be improved to make it more effective—Approved.

Committee on Mental Health—1. That the work of improving the state hospitals and increasing their facilities, both as to personnel and equipment, be continued; also that the establishment of psychopathic units in the general hospitals be considered still the most urgent and most important matter to receive attention—Approved.

Committee to Study Possibility of Creating a Pension, or Retirement Fund—1. That this plan not be attempted—Approved.

Report by Chairman of the Nutrition Committee of the Orleans Parish Medical Society—1. That the Louisiana State Medical Society appoint a committee to collaborate with the Committee of the Orleans Parish Medical Society and with other agencies concerned with better diet programs in the schools and welfare work, so that uniformity may be obtained in the recommendations submitted to the public by physicians, teachers, welfare workers and others concerned and that these recommendations may come with the added force that they have met the approval of the physicians of this state.—Motion was made and carried that a committee be appointed by the Chairman to represent the State of Louisiana and that each congressional district be represented on this committee to collaborate with other agencies interested in nutrition. 2. That these lists be made available to all physicians at a moderate price, and that physicians be permitted to have them printed bearing their own names and that every physician in the state be urged to get one of these lists into the hands of everyone looking to him for health, and that the importance of verbal explanations and instructions be emphasized—Approved.

The following reports, which contained no recommendations, were accepted: Council; Councilors of First, Second, Fourth, Fifth, Sixth, Seventh and Eighth Districts; Committees on Journal, Medical Defense, Scientific Work, Walter Reed Memorial, to Prepare History of L.S.M.S. and Public Policy and Legislation.

By action of the House of Delegates the Chairman appointed a special committee to review the report submitted by the Department of Institutions to the *Committee on Tuberculosis* and referred to the House by the Committee on Tuberculosis. This special committee recommended that the report be referred back to the Committee on

Tuberculosis so that they can make proper recommendations to be referred to the Executive Committee at its next meeting—Approved.

Motion was made and carried that the House of Delegates go on record as approving the recommendation for more beds for tuberculous patients.

The Chairman of the Committee on Hospitals was desirous of having an expression from the House of Delegates as to whether or not the charity institutions of the state should charge patients able to pay when they come in for emergency treatment. After considerable discussion motion was made and carried that the matter be tabled.

Motion was made and carried that the Department of Institutions throughout the state be notified that when industrial accident cases are picked up they should be taken to private institutions.

Motion was made and carried that the superintendents and residents of the various state charity hospitals be not permitted to practice medicine outside of the institutions on private patients.

Motion was made and carried that under the present war conditions the Board of Institutions will be privileged to suspend the general rule and allow men employed in the institutions in specialty capacities to consult and that this hold good for the duration of the war.

Dean John F. McCloskey, Dean of the New Orleans College of Pharmacy, Loyola University, addressed the House on "Changing Conditions Require Closer Relations Between Medicine and Pharmacy." Motion was made and carried that the House of Delegates express appreciation to the essayist for his splendid presentation. A special committee appointed by the Chairman to review the paper presented made the following recommendation—1. That a committee from this Society be appointed to collaborate with pharmaceutical bodies for the betterment of medicine and pharmacy in this state and in general—Approved.

A letter from Dean McCloskey, addressed to the Chairman of the House was read. This letter contained a request that a resolution be introduced at this meeting opposing any legislation which will affect the standards of pharmacy—Motion was made and carried that this matter be left to the Committee on Public Policy and Legislation.

Motion was made and carried that a telegram be sent to the family of Dr. J. C. Willis, Sr., who died just prior to the meeting and that a letter be sent to Dr. H. E. Bernadas who was unable to attend the meeting due to illness.

A telegram was read which was received from Dr. Wm. L. Marr, of Galveston who had been appointed as Fraternal Delegate to this meeting by the Medical Association of Texas, expressing regret that he was unable to attend the meeting.

A communication from the Chairman of the Section on Ophthalmology of the Michigan State Medical Society and the President of the Detroit Ophthalmological Society was read. This was referred

to the ophthalmologists of the state, represented by Dr. W. B. Clark and the report submitted from this group was to the effect that it still be retained as part of medical ethics that it be considered unethical for any ophthalmologist to lecture or give talks before optometrists or optometrical groups. The House of Delegates went on record as endorsing this report.

In line with a communication received from the Louisiana Pediatric Society, motion was made and carried that the Chairman appoint a committee composed of a representative of each of the specialty groups mentioned in the communication and the secretary-treasurer and anyone else whom he sees fit to appoint to give proper study to the subject of cooperation with the special groups when planning the program for the annual meeting and report back to the next annual meeting of the House of Delegates; also that the program committee next year try to incorporate the general idea of this type of program.

A communication received from the Franklin Parish Medical Society concerning participation by doctors in the parish in the plan of the Farm Security Administration, without approval of the local society, was referred to the Council.

Dr. W. S. Slaughter, of Baton Rouge, who has been serving, by appointment of the president of the Society, on a nutrition committee of the state which is a part of a national set-up conducted mainly by lay people, offered his resignation on this committee and motion was made and carried that this resignation be accepted.

A telegram received from Dr. J. Q. Graves, expressing regret that he was unable to attend the meeting was read.

Dr. Musser asked that he be relieved of presenting his paper scheduled for Tuesday morning, due to the death of his sister, with the request that some other member read his paper and motion was made and carried that this request be granted.

A letter from the Chairman of the Committee on Care of the Indigent Physician, recommending inactive membership for four members of Rapides Parish was read and motion was made and carried that this recommendation be approved.

Motion was made and carried that the House of Delegates go on record as unanimously expressing appreciation to Dr. Emmett Irwin for the luncheon given the House of Delegates.

Motion was made and carried that the Executive Committee be empowered to dispense with the 1943 annual meeting if they see fit to do so.

Dr. C. M. Horton, of Franklin, and Dr. Sam Kerlin, of Shreveport, were recommended for vacancy on the Louisiana State Board of Medical Examiners in re Dr. R. W. O'Donnell; Dr. Rhett McMahon of Baton Rouge, and Dr. Lester Williams, of Baton Rouge, were recommended in re Dr. Rhett McMahon.

The report of the Committee on Resolutions was accepted.

Election of Officers:

Dr. C. C. deGravelles, President-elect; Dr. John T. O'Ferrall, First Vice-President; Dr. W. V. Garnier, Second Vice-President; Dr. E. H. Lawson, Third Vice-President; Dr. P. T. Talbot, Secretary-Treasurer; Dr. H. E. Bernadas, Councilor First District; Dr. C. G. Cole, Councilor Second District; Dr. M. D. Hargrove, Councilor Fourth District; Dr. John Snelling, Councilor Fifth District.

Committees: Scientific Work—Dr. P. T. Talbot, Chairman; Drs. Edgar Hull and R. T. Lucas.

Public Policy and Legislation—Dr. Emmett L. Irwin, Dr. P. T. Talbot, Dr. Roy B. Harrison, Chairman; Drs. Rhett McMahon and C. G. Cole.

Journal—Dr. D. I. Hirsch, 1 year; Dr. J. K. Howles, 3 years.

Medical Defense—Dr. Clarence B. Erickson, 3 years.

Chairman of House of Delegates—Dr. Val Fuchs.

Vice-Chairman of House of Delegates—Dr. A. W. Martin.

Delegate to A. M. A. 1943 and 1944—Dr. Leon J. Menville.

Alternate to Delegate to A. M. A. 1943 and 1944—Dr. C. L. Peacock.

Next place of meeting: Baton Rouge.

REPORT OF COMMITTEE ON RESOLUTIONS

Whereas, The Louisiana State Medical Society has enjoyed one of its outstanding and successful meetings, and

Whereas, The success of this meeting is due to the zealous and untiring efforts and splendid cooperation of several individuals and organizations,

We therefore offer the following resolutions of cooperation:

1. To Dr. John T. O'Ferrall, General Chairman of the Committee on Arrangements, for his generous and untiring efforts which have contributed greatly to the success of the meeting.

2. To the Orleans Parish Medical Society, host of the meeting, for their splendid cooperation and the excellent manner in which the convention was conducted.

3. To the efficient staff of the Secretary's office and the Secretary-Treasurer whose careful preparation of the details of the meeting contributed much to its smooth operation.

4. To Dr. Val H. Fuchs, Chairman of the House of Delegates, for the efficient and orderly manner in which he conducted the meeting of the House of Delegates.

5. To the Woman's Auxiliary of the Louisiana State Medical Society whose wholehearted support and interest added considerably to the meeting.

6. To the scientific and commercial exhibitors whose splendid displays greatly enhanced the excellence of the meeting.

7. To the press of New Orleans for their in-

terest and assistance in giving space for news of the meeting and of various personages in attendance.

8. To Mr. Roy Bartlett, Convention Director, the personnel of his office, and the Roosevelt Hotel for the many courtesies extended and for their cheerful and willing attention to the innumerable calls for assistance.

9. To the Association of Commerce for their invaluable assistance at the registration desk.

10. To the members of the State Society who attended the meeting and whose interest and enthusiasm made the meeting a success.

We recommend that a copy of these resolutions be incorporated in the minutes of the meeting, a copy be given to the press, and a copy to the Bulletin of the Orleans Parish Medical Society and to the New Orleans Medical and Surgical Journal.

Respectfully submitted,

Rhett G. McMahon, M. D., Chairman,
W. E. Barker, M. D.,
P. G. Lacroix, M. D.

REPORT ON COMMITTEE ON MEDICAL DEFENSE

Below is given the present status of cases against six members which have been brought to the attention of the Medical Defense Committee since the 1941 Annual Meeting.

In April, 1941 a case brought against a Shreveport member was referred to the committee. Details of the case were submitted to our attorney who immediately interviewed the physician and prepared answers to the charges made. Nothing further has been heard from the plaintiff or the doctor since that time and the case has never been set down for trial.

The attorney filed an order in May, 1941 discontinuing, with prejudice, a case brought against a member residing in Bogalusa, which had been submitted to the Committee in March, 1939. This automatically closed the case.

The Orleans Parish Society referred to the committee a claim against a New Orleans physician, in October, 1941. The material was sent to the attorney and since that time nothing further has been heard about the claim and suit has not been filed against the doctor.

Two cases are being handled for another member of the Orleans Parish Society. The first, which has been pending for nearly four years, is in court and a jury has been asked for, however it has never been put on the docket by the plaintiff. The second has been set down for trial on several occasions, the last of which was in February, 1942, at which time the case was continued indefinitely on the motion of the plaintiff. Our attorney advises us that it is his opinion, with respect to both of these cases, that the doctor has satisfactory and sufficient defenses and that he has assured this member that if the cases are ever tried, which in his

opinion is doubtful, he shall be able fully to protect his interests and obtain judgments in his favor.

Several exceptions have been filed in the case pending against a Lake Charles physician, previously reported by our committee, and our attorney has personally argued such exceptions on two occasions at which time the court maintained such exceptions, finally requiring the plaintiff to restate her entire petition. After this was done it was still found that the same did not comply with the Pleading and Practice Act and exceptions were filed to the redrawn petition. These exceptions were filed over six months ago and have never been set down for trial by the plaintiff. We are advised by our attorney that he is of the opinion that the physician in question has a complete and perfect defense.

During the early part of February, 1942 material was submitted to the committee in connection with a threatened suit against a member of the Orleans Parish Society. All data concerning this case were referred to our attorney who subsequently advised that the case was settled out of court.

Attached to the original report is financial report indicating the amount in the Medical Defense savings account and the trust fund.

Respectfully submitted,

S. Chaille Jamison, M. D., Chairman.

THE GOLF TOURNAMENT

The recent golf tournament at the time of the State Medical Society was most successful, some thirty-five members of the Society exhibiting their skill in the old Scotch game. The following prizes were awarded. Low gross prize was awarded to Dr. C. Gordon Johnson, and was a pair of golf shoes donated by the Roosevelt Hotel. Second low gross went to Dr. A. R. Morgan of Crowley, who received a sport suit donated by D. H. Holmes Company. The third low gross was given to Dr. Harry Meyer, and was a golf bag donated by Sears, Roebuck and Company. Dr. Edwin L. Zander was awarded the prize of the first low net score, which was a doctor's bag donated by the Surgical Equipment Company, which is a division of the A. S. Aloe Company. Dr. Conrad G. Collins received the second prize for low net, which was a leather kit, donated by McKesson and Robbins. Third low net was awarded to Dr. Peter Grafagnino, and was a fountain pen desk set, donated by Mead Johnson and Company. Dr. Virginia Webb had the proud distinction of receiving first prize for the high gross score, averaging slightly over 9's for the eighteen holes, which was a bottle of tincture metaphen, donated by Abbott Laboratories.

The other prizes that have been awarded were given for either low net or low gross, but no invidious distinctions will be drawn and there will be listed simply the names of prize winners, the

prizes and who donated them: Dr. Charles B. Odom, bottle of whiskey donated by Lederle Laboratories; Dr. W. G. Jones, Shreveport, a gift box donated by Sharp and Dohme; Dr. C. P. Rutledge, Shreveport, a gift box donated by Sharp and Dohme; Dr. A. D. Mangham, Elizabeth, a Lanthieric set donated by the Medical Arts Drug Store; Dr. C. H. Weinberg, pen and pencil set donated by Hebert Pharmacy; Dr. E. L. Faust, Old Schenley whiskey donated by Winthrop Chemical Company; Dr. H. Ashton Thomas, Early Times whiskey donated by Waterbury's Drug Store; Dr. Leon J. Menville, Robertson County whiskey donated by I. L. Lyons Company; Dr. W. R. Hardy, Herbsaint donated by Legendre's, Inc.; Dr. L. R. DeBuys, bourbon whiskey donated by Katz and Besthoff; Dr. Ralph J. Christman, baumanometer donated by McDermott Surgical Instrument Company; Dr. C. S. Wood, Yendis whiskey donated by Eli Lilly and Company; Dr. Creighton Shute, stethoscope donated by Surgical Supply Company; Dr. E. H. Lawson, wallet donated by Mayer Israel Company; Dr. F. Temple Brown, sport shirt donated by Godchaux's; Dr. Val Fuchs, radio donated by Mead Johnson and Company; Dr. Edgar Burns, cocktail set donated by Meyer Brother Drug Company; Dr. Frederick Boyce, desk clock donated by Mead Johnson and Company.

EXECUTIVE COMMITTEE

There was a meeting of the Executive Committee of the State Society on Saturday, May twenty-fifth, at which the following officers were present:

Dr. Emmett Irwin, President; Dr. W. V. Garnier, Second Vice-president; Dr. Edwin H. Lawson, Third Vice-president; Dr. P. T. Talbot, Secretary-Treasurer; Dr. Val Fuchs, Chairman of House of Delegates; Dr. H. E. Bernadas, Councilor First District; Dr. C. Grenes Cole, Councilor Second District; Dr. M. D. Hargrove, Councilor Fourth District; Dr. John Snelling, Councilor Fifth District; Dr. Rhett McMahon, Councilor Sixth District; Dr. C. A. Martin, Councilor Seventh District.

After routine matters were disposed of there was a very interesting discussion of proposed bills to be presented at the current session of the State Legislature. These bills were turned over to the Committee on Public Policy and Legislation for appropriate handling.

Attention of the Committee was called to the need for wartime medical service and plans are being made to institute appropriate procedure for the handling of this important activity.

SIXTH DISTRICT MEDICAL SOCIETY

A meeting of the Sixth District Medical Society was held in Baton Rouge from 10:00 a. m. to 1:00

p. m. on Thursday, May twenty-eighth. Following was the scientific program presented:

Ectopic Pregnancy, by Dr. Jack Jones, New Orleans.

Ear, Nose and Throat Diseases in Children, by Dr. J. W. McLaurin, Baton Rouge.

Thyroidectomy (moving picture), by Dr. T. S. Jones, Baton Rouge.

The President of the State Society, Dr. Emmett Irwin, attended the meeting and addressed those present on important matters confronting the medical profession today. The meeting was also attended by Dr. P. T. Talbot, Secretary of the State Society, who made a few remarks concerning the present status of the organization.

APPOINTMENTS IN THE ARMY

SUBJECT: Procurement of Applications for Appointment in the Medical Corps, Army of the United States.

TO: All Physicians, State of Louisiana.

Due to the present emergency the Army requires the services of approximately twelve thousand additional Medical Corps Officers. The need is urgent.

If you are between the age of 18 and 60 years, it is your patriotic duty to make your services available to your government by applying for appointment in the Medical Corps and immediate active duty.

Get in touch with a representative of this Headquarters, at 605 Federal Building, New Orleans, Louisiana, immediately regarding this matter.

If you have already initiated action toward appointment as a Medical Officer, it will not be necessary for you again to contact this office.

ELBERT J. LYMAN,
Colonel, Infantry,
Executive.

NEWS ITEMS

The Annual Meeting of the American Association for the Study of Goiter has been cancelled on account of unsettled war conditions.

The International College of Surgeons will hold their National Assembly July 15-18 in Denver, Colorado, with headquarters at the Shirley-Savoy Hotel.

The American Congress of Physical Therapy will hold its Annual Scientific Clinical Session in Pittsburgh, Pennsylvania, September 9-12. Headquarters will be at the Hotel William Penn.

The American College of Physicians held its annual convocation in St. Paul on April 20-24. There was a very large attendance in which Louisiana men were well represented. The following doctors from this state were registered: D. C. Browne,

W. R. Galbreath, Edgar Hull, Sydney Jacobs, G. R. Meneely, L. A. Monte, J. H. Musser, I. L. Robbins, all of New Orleans; G. H. Faget, Carville; Otis S. Warr, Camp Claiborne; A. A. Herold, M. W. Matthews, T. B. Tooke, Jr., of Shreveport.

At the joint meeting of the Louisiana Academy of Sciences and the New Orleans Academy of Sciences held at the St. Charles Hotel, May 1-2, Dr. Charles Midlo acted as chairman of the Medical Section Symposium. This was on some aspects of war medicine. The speakers and their subjects were as follows: Dr. T. A. Watters, "Our Nerves and the War"; Dr. Urban Maes, "The Surgery of Modern Warfare"; Dr. Harry A. Davis, "The Problem of Blood Transfusion During Wartime"; Dr. Mims Gage, "Traumatic Aneurysms of the Femoral Artery."

At the recent meeting of the Texas State Medical Association President-Elect Dr. C. C. de-Gravelles was the Fraternal Delegate from Louisiana. Dr. J. H. Musser presented three papers before the General Session and the Section on Public Health.

Drs. George E. Burch and William A. Sodeman read a paper by title before the American Society for Clinical Investigation at the scientific session on Monday, May 4. The paper was entitled "Observations on the Weight of Water Loss from the Skin of Humans in a Subtropical Climate."

The ninth annual meeting of the American Rheumatism Association will be held at the Chalfonte-Haddon Hall, Atlantic City, N. J., June 8.

The annual meeting of the National Gastroenterological Association will be held at the Hotel Astor in New York, June 3-4. In addition to many other speakers, Dr. Alton Ochsner is on the program of this meeting.

Dr. Roy H. Turner appeared on the program on the occasion of the fifty-seventh annual meeting of the Association of American Physicians in Atlantic City. He spoke on "Reaction of Local and Remote Finger Blood Vessels to a Painful Injury to a Finger Pad."

There is a small rural hospital-clinic and practice for sale in a community 60 miles from New Orleans. Further information may be secured at the office of the Journal.

The Dow Chemical Company, Freeport, Texas, has opened a forty bed hospital in Freeport and desires the services of physicians, nurses, and technicians.

For detailed information communicate with the Dow Chemical Company, Freeport, Texas.

It is very regrettable to report the recent illness of our Past President, Dr. King Rand, who has been confined to Touro Infirmary following a surgical procedure. He has made very rapid recovery and will soon be back to his good health.

All doctors who have not returned the questionnaire recently sent out from Washington are importuned to do so at once. The Committee on Procurement and Assignment is doing a wonderful job but all must make every possible effort to furnish information to the office in Washington concerning their present status.

There has been unusual activity throughout the state in regard to civilian medical defense. Probably in the near future more definite announcement will be made concerning this feature. In the meantime organization is proceeding in the various metropolitan centers and parishes. Your cooperation in this work is most important.

DIGITALIS DOSAGE

Examinations of a number of samples of each of the various pharmaceutical forms of digitalis indicate that a substantial reduction in potency will result in changing from USP XI to USP XII standards. The exact reduction is not predictable but our data indicate that the reduction will amount to 40 per cent or more in at least one-half the cases.

In a drug in which standardization is as important as with digitalis, a change in potency of this magnitude is of the greatest interest to the physician and patient. It is suggested that during the transition period in which USP XI and USP XII products may both be available, conspicuous notice of the reduction in potency be given on the labels.

T. G. Campbell,
Commissioner of Food and Drugs.

MISSISSIPPI STATE MEDICAL ASSOCIATION

The Seventy-fifth Annual Meeting of our sister State's Medical Society was held May 12-14 at Jackson, Mississippi, under the leadership of Dr. Augustus Street of Vicksburg, the President. Dr. Street will be succeeded by Dr. H. Lowry Rush of Meridian, President-elect. An excellent scientific program was presented to the organization. Amongst the Louisiana doctors who appeared on the program were Dr. W. R. Buffington of New Orleans, who spoke on Retinal Detachment; Dr. Theodore A. Watters, whose subject was a Consideration of Mental Health as a Part of a State Health Program; Dr. C. L. Williams of the United States Public Health Service, whose headquarters are in New Orleans, also gave an address. Dr. Oliver P. Daly, Director of Charity Hospital of New Orleans, and Dr. A. J. Hockett, Superintendent of Touro Infirmary, participated in the meeting of the Mississippi State Medical Association.

BLOOD AND PLASMA BANKS

Regulations for the administration of the Blood and Plasma Bank Program of the Medical Division of the United States Office of Civilian Defense have now been prescribed, and funds are available for grants to assist approved hospitals in establishing blood and plasma banks. Only hospitals within 300 miles of the Atlantic, Pacific or Gulf coasts are eligible for such grants. After July 1, 1942, these geographical restrictions may be modified, so that grants may be made to inland hospitals. Applications should be addressed to the Chief Medical Officer, United States Office of Civilian Defense, Washington, D. C.

Technical manuals on blood and plasma banks, prepared by the Sub-committee on Blood Substitutes of the Division of Medical Sciences, National Research Council are now available for distribution on request of any hospital to the Chief Medical Officer, Office of Civilian Defense.

The Red Cross has established eighteen donor centers in various parts of the country which are successful in obtaining an adequate supply of blood donors for military purposes. Blood for the production of dried plasma for Civilian Defense purposes will also be obtained from these sources.

Hospitals which establish their own blood and plasma banks with the financial assistance of the Office of Civilian Defense are advised to build up their reserves of blood and plasma by expanding blood collection from relatives and friends of patients who are to receive transfusions. A public campaign for volunteer donors which may compete with the work of the Red Cross should be avoided if possible. If public solicitation is necessary, hospitals should appeal to the local chapters of the American Red Cross for assistance in recruiting hospital donors. Blood donor campaigns by agencies other than the Red Cross will tend to confuse the public and may interfere with the blood collection by the Red Cross for the armed forces.

Details can be obtained from the office of the Journal.

NATIONAL HEALTH COUNCIL

The election of Dr. George S. Stevenson, Medical Director of the National Committee for Mental Hygiene, as President of the National Health Council for 1942 was made public today by Thomas C. Edwards, Assistant Secretary of the Council. Dr. Stevens succeeds Dr. Kendall Emerson, Managing Director of the National Tuberculosis Association, who becomes Vice-president and Chairman of the Executive Committee.

Other officers elected are Dr. William F. Snow, General Director of the American Social Hygiene Association, who was elected Treasurer, and Mrs. Eleanor Brown Merrill, Executive Director of the National Society for the Prevention of Blindness, who was elected Secretary.

The following have been elected members of the

Board of Directors for the next three years: Dr. Thomas Parran, Surgeon General, United States Public Health Service; Dr. Martha M. Eliot, Acting Chief, United States Children's Bureau; Dr. Reginald M. Atwater, Executive Secretary, American Public Health Association; Dr. Edmund P. Fowler, representing the American Society for the Hard of Hearing; Dr. C. C. Little, Managing Director, American Society for the Control of Cancer; Mr. Howard W. Green, representing the National Committee of Health Council Executives, and Dr. George Baehr. Also elected as members of the Board of Directors for the current year were: Mr. James L. Fieser, Vice-chairman, American Red Cross; Miss Ruth Houlton, General Director, National Organization for Public Health Nursing, and Mr. Robert Bondy.

AMERICAN SOCIAL HYGIENE ASSOCIATION

A special session on social hygiene was held in conjunction with the sixty-ninth annual meeting of the National Conference of Social Work in New Orleans on Thursday, May 14. This program was sponsored by a group of agencies in the City of New Orleans, including the Louisiana Parent-Teacher Association, Association of Commerce, Associated Catholic Charities, Tulane School of Medicine, Louisiana State University School of Medicine, Young Men's Christian Association, and other groups. Appearing on the program, at which Dr. Eugene B. Vickery presided, were the following speakers and discussors: Mr. Raymond F. Clapp, Monsignor P. M. H. Wynhoven, Lt. Col. Charles G. Souder, Dr. I. L. Schamber, Mr. Bascom Johnson, Mr. George Gould, Dr. C. L. Williams, and Dr. George M. Leiby.

UNITED STATES PUBLIC HEALTH SERVICE

Dr. Ford S. Williams has been ordered for duty in San Francisco, Calif. Dr. Carroll T. Bowen has been relieved from duty in Alexandria and assigned to the City Health Department, New Orleans. Dr. Seth W. Kellam has been relieved from duty in New Orleans ordered to Nashville, Tenn. Dr. W. H. Aufranc and Dr. W. P. Sellers have been relieved from duty in New Orleans, as has Dr. W. G. Budington, Dr. George G. Van Dyke, and Dr. T. E. Morgan.

INFECTIOUS DISEASES IN LOUISIANA

For the week ending April 11, the following diseases in numbers greater than 10 were reported to the Section of Epidemiology of the Louisiana State Board of Health; measles 354, syphilis 326, gonorrhea 51, mumps 49, pulmonary tuberculosis 35, lobar pneumonia 19, chickenpox 16, whooping cough 11. During this week there were reported seven cases of typhus fever, three of them from Iberia Parish and four arising in Madison Parish. A large number of the diseases reported for this week had their origin in army camps, for example,

70 of the cases of measles were in army camps. For the week terminating April 18, there were listed 251 cases of measles, 194 syphilis, 65 of gonorrhea, 45 of pulmonary tuberculosis, 36 of mumps, 29 of amebiasis, 23 of chickenpox, 13 of pneumonia, and 11 of chancroid. Most of the patients with gonorrhea were found in the army camps. However, the measles cases from the camps were reduced to only nine in this particular week. For the week closing April 25, syphilis again obtained first place in the number of reportable diseases, there being 239 cases, followed by 184 of measles, 82 of gonorrhea, 30 of mumps, 21 of chickenpox, and 16 of pulmonary tuberculosis. One case of typhus fever was found in Jefferson Parish. Fifty of the measles cases came from the cantonments. For the week ending May 2, measles jumped to the fore again with 320 cases being reported from the Board of Health, followed by 277 of syphilis, 37 of gonorrhea, 25 of mumps, 20 of pulmonary tuberculosis, 12 each of whooping cough and chickenpox. There was also recorded this week 62 cases of food poisoning due to an outbreak in Jefferson Parish. Army camps reported very few of the reportable diseases in this week. The measles epidemic continued as shown by the figures which closed May 9 at which time 191 cases were listed, but 113 of these came from army camps. Next listed in frequency was syphilis with 172 cases, followed by gonorrhea with 36, mumps and pulmonary tuberculosis with 29 each. During the past month very few cases of typhoid fever were reported in the state, no cases of poliomyelitis, and only a very few of meningitis. Diphtheria was never reported in numbers greater than 10.

HEALTH OF NEW ORLEANS

The Bureau of the Census, U. S. Department of Commerce, has reported for the week ending April 11 there was listed 128 deaths in the City of New Orleans, as contrasted with 140 in the previous week. These deaths were divided 85 white and 43 negro, with seven of them occurring in children under one year of age. For the following week there was a slight fall in the mortality figures as there were only 122 deaths in the city, divided 81 white, 41 negro, with six of these deaths being in infants. The week terminating April 25 showed a still further reduction in the number of deaths in the city. Of the 121 citizens who died this week 79 of them were white people and 42 were negroes, with nine infant deaths divided between the two races. The mortality figures still showed a decline in the week which ended May 2. There were 116 deaths sparsed 68 white, 48 negro, and 11 infant deaths. For the next week for which reports were still available, namely that which ended May 9, the 106 deaths from New Orleans were apportioned 74 white, 32 negro, with six infant deaths.

WOMAN'S AUXILIARY

The Fourteenth Annual Meeting of the Woman's Auxiliary to the Louisiana State Medical Society was held in New Orleans, April 27, 28, and 29, 1942. Attendance was excellent at all meetings. Mrs. Aynaud Hebert of New Orleans, President, presided at the pre-convention executive board meeting. One matter of importance at this meeting was the recommendation that a Widow's Fund be started by the Auxiliary since the doctors have taken up the Indigent Physicians Fund and we are no longer requested to contribute to this fund. This project was started this year by donations amounting to \$45.00.

April 28 at 2:00 p. m. the General Session met at the Tip Top Room of the Roosevelt Hotel, Mrs. Aynaud Hebert, presiding. Rev. Msgr. Peter H. Wynhoven gave the invocation. The address of welcome was given by Mrs. Isidore Cohn, response by Mrs. F. C. Shute, in memoriam by Mrs. James W. Warren, music by Mrs. Edmond Souchon, and benediction by Rev. N. H. Melbert. Minutes were read and approved. Reports of State Officers, State Committees, Parish Presidents, and Special Committees were read and filed. Mrs. Wm. B. Clark gave the report of the Woman's Auxiliary to the Southern Medical Association; Mrs. A. A. Herold gave the report of the Woman's Auxiliary to the American Medical Association. In this report Mrs. Herold told us an office had been opened in Chicago to carry on the work of the Auxiliary. Mrs. Hebert gave a very complete and interesting report of her year's work, and thanked her co-workers for their loyal support. Mrs. Erickson, the incoming President, was then presented with the gavel by Mrs. Hebert. Mrs. Erickson then asked for the same fine cooperation for the coming year, and asked that all correspondence be answered immediately. The following officers were then introduced:

President—Mrs. Clarence B. Erickson, Shreveport.

President-elect—Mrs. George Taquino, New Orleans.

First Vice-president—Mrs. W. R. Harwell, Shreveport.

Second Vice-president—Mrs. A. D. Tisdale, Monroe.

Third Vice-president—Mrs. D. B. Barber, Alexandria.

Fourth Vice-president—Mrs. Thos. Richardson, Minden.

Treasurer—Mrs. C. R. Gowen, Shreveport.

Recording Secretary—Mrs. E. Ellender, Houma.

Corresponding Secretary—Mrs. W. J. Sandidge, Shreveport.

On Wednesday, April 29, at 10:30 a. m., the Post-convention Executive Board Meeting was held. Mrs. Clarence B. Erickson presided. A motion was made and carried that Hygeia again be made a

project of this Auxiliary. Exhibits are to be held over for next year's meeting in Baton Rouge. Plans for the Widow's Fund were discussed and Mrs. Aynaud Hebert was made chairman of that committee.

Wednesday at 1:00 p. m. a luncheon in honor of Mrs. Clarence B. Erickson was given at the Orleans Club, with Mrs. S. Chaille Jamison as Toastmistress. Dr. King Rand, President of the Louisiana State Medical Society and Dr. Emmett Irwin, President-elect of the Society, were honored guests for this occasion. Thanks were extended to Mrs. C. Grenes Cole, General Chairman, Mrs. J. T. O'Ferrall and Mrs. Roy B. Harrison, Vice-chairman, and Mrs. Paul Lacroix, President of the Orleans Parish Auxiliary. Appreciation was extended to Dr. J. T. O'Ferrall, General Chairman, and Dr. P. T. Talbot, Secretary-treasurer, for their cooperation and assistance. Mrs. Erickson suggested that all badges be collected after the luncheon, so that they may be used next year, as tin and copper are two of the metals needed for defense. This was done and badges were turned over to Dr. Talbot.

On Wednesday at 7:30 p. m. a dinner dance was given in the Ball Room of the Roosevelt Hotel. Dr. King Rand, President, introduced the speaker of the evening, Hon. Robert J. Usher.

Chairmen of Committees:

Archives—Mrs. P. Lacroix, New Orleans.

Doctors' Day—Mrs. J. B. Montgomery, New Orleans.

Exhibits, Mrs. B. L. Cook, Minden.

Finance—Mrs. R. Spedale, Plaquemine.

Historian—Mrs. M. C. Wiginton, Hammond.

Organization—Mrs. J. D. Frazar, DeRidder.

Cancer Control—Mrs. Nathan Polmer, New Orleans.

Program—Mrs. D. L. Kerlin, Shreveport.

Printing and Supplies—Mrs. F. C. Shute, Opelousas.

Public Relations—Mrs. D. T. Martin, Donaldsonville.

Revision of By-laws—Mrs. A. A. Herold, Shreveport.

Entertaining Service Men—Mrs. O. B. Owens, Pineville.

Bulletin—Mrs. R. T. Lucas, Shreveport.

Red Cross—Mrs. A. D. Mangham, Elizabeth.

Widows' Fund—Mrs. A. Hebert, New Orleans.

Councilors:

First District—Mrs. E. Souchon, New Orleans.

Second District—Mrs. W. R. Metz, New Orleans.

Third District—Mrs. Willard Ellender, Houma.

Fourth District—Mrs. J. E. Heard, Shreveport.

Fifth District—Mrs. C. P. Gray, Sr., Monroe.

Sixth District—Mrs. A. W. Martin, Bogalusa.

Seventh District—Mrs. Olin Moss, Lake Charles.

Eighth District—Mrs. M. H. Foster, Alexandria.

BOOK REVIEWS

Treatment of Infantile Paralysis in the Acute Stage: By Elizabeth Kenny. Minneapolis, Minn., Bruce Publishing Co., 1941. Pp. 285. Price, \$3.50.

This work is a full exposition and apology for the Kenny treatment of infantile paralysis in its acute stage, written by the author and originator of that method. It incorporates the experiences gained by the treatment of a large number of cases in St. Paul, Minnesota, and gives a resume of the author's experiences gained with the use of the method in her home country, Australia.

The work is timely, inasmuch as there has been a good bit of publicity given the method in the lay magazines and journals. Unfortunately the present work is filled with apology for, and testimonials in support of the theories devised by the author to substantiate her claims. Because of this fact, the clear exposition of the method as used clinically is sometimes obscured. If one wishes to evaluate the method for personal use, however, the book is invaluable. The details of physical therapy, muscle re-education and muscle exercise are all incorporated in this work. For anyone who is interested in the mechanical conduct of the Kenny treatment, and the manner in which it is to be

used in the treatment of an individual clinical case of the disease, the present work is indispensable. A statistical record of the amount or degree of residual paralysis and residual deformity for all cases treated to date, would have made the work much more convincing. One might gain the impression from casual survey that no case seen early had any residual disability, following treatment, yet this assumption cannot be made in the absence of proof that it actually existed. Certainly the interest in the Kenny method will provide for improvement generally in the treatment of acute poliomyelitis, since the method certainly has proved its worth to many competent authorities. Before using the method in any given case of poliomyelitis, a careful study of the present work should be undertaken.

F. J. Fox, M. D.

Eye Hazards in Industry: By Louis Resnick. New York, 1941. Columbia University Press. Pp. 321. Price, \$3.50.

Following the presentation of some astounding statistics regarding the cost of industrial accident to the eye, both from humanitarian and monetary points of view, the author proceeds to the

consideration of eye accidents, eye diseases, their causes and possible means of prevention and correction.

He estimates that during one year the cost of eye accidents to industry amounts to more than \$110,000,000, and that the loss in wages suffered by injured workmen and the cost of government relief for injured men amounts to an additional \$100,000,000 annually.

These accidents occur chiefly in the metal and metal products manufacturing industries, mining and quarrying, building and general construction, and lumber and wood manufacturing industries.

Following a process of "true cause analysis of accidents," the author concludes that 98 per cent of these accidents are preventable. Suggested corrective measures are directed mainly toward education of employers and employees.

Increased expansion of compensation laws has provided the greatest, though not the sole stimulus, to industry's growing concern with the prevention and cure of occupational diseases. Diseases resulting from the following are discussed briefly: (1) accidents or mechanical injuries; (2) exposure to injurious radiant energy; (3) exposure to toxic chemicals; (4) inadequate or improper lighting, and (5) communicable diseases which may be spread by unsanitary and improper working conditions.

The section on defective vision contains a graphic description of the errors of refraction. Actual investigations have shown that half, or even more than half, of certain groups of employees had defective and uncorrected vision. The writer believes that the cost to industry resulting from undiscovered and uncorrected defective vision among industrial workers is at least as great as the cost of industrial accidents and diseases causing total or partial blindness. It is suggested that all applicants be examined, that the correction of refractive errors be made a pre-employment requirement, and that visual limitations receive individual consideration in assigning workers to jobs.

The section on first aid has definite practical value. Emphasis is placed especially on the importance of immediate treatment in cases of burns due to acids and caustics. The limitations of treatment, of which the first aid (non-medical) helper is qualified, are pointed out.

The latter portion of the book is devoted to the more technical problems of "the solution," education, administration, design of mechanical guards, and proper lighting.

Of especial interest among the several appendices is the list of industrial poisons and the descriptions of their various effects.

GEORGE M. HAIK, M. D.

Arthritis in Modern Practice: By Otto Steinbrocker, B. S., M. D., in collaboration with John G. Kuhns, A. B., M. D., F. A. C. S. Philadelphia,

W. B. Saunders Company, 1941. Pp. 606. Price, \$8.00.

The authors present this volume to fill the obvious need for a practical source of information incorporating the newer methods in the diagnosis and treatment of rheumatic disease. They have done exactly this in an excellently systematized, twenty-five chaptered text which is remarkably concise in its amply illustrated 606 pages. Diagnostic and therapeutic measures predominate with only the essentials of pathology being considered.

It is easy to read the medico-social section which presents the true significance of rheumatic disease in relation to our economic structure. A classification of arthritis, well amplified, precedes the general survey of the subject and leaves the reader with a more practical attitude on how to make an accurate diagnosis of arthritis by its joint deformity. The entities fibrositis and fasciitis are established and it is truly interesting to review their manifestations which emphasize the importance of such knowledge in relation to internal medicine. A complete rationalization of rheumatic disease is realized in the following chapters and one readily appreciates the ability to avoid the waste, pain and risk of therapeutic trials.

Treatment is covered in a completeness that includes physiotherapy, local and regional analgesic injections, posture and exercises, manipulation and the actual operative and supportive procedures.

A concluding section consisting of a glossary of signs, syndromes and other data related to rheumatic disorders leaves the reviewer well pleased with the presentation and enthusiastically endorsing the work for its general value to the practitioner, internist and student as well as its specific relationship to the orthopedist.

GORDON MCHARDY, M. D.

The Modern Treatment of Syphilis: By Joseph Earle Moore, M. D. 2d ed. Springfield, Ill. Chas. C. Thomas Co., 1941. Pp. 674. Price \$7.00.

This text chiefly deals with the procedures and technics advocated and utilized by the syphilis division of Johns Hopkins University—continuous, alternating arsenicals and bismuth or mercury treatment. A complete bibliography of discussed references follows each chapter. Frequent mention is made of the contributions of the Cooperative Clinical Group (C. C. G.) which is comprised of the chiefs of several of the larger syphilis clinics.

Modes of dissemination, latency, asymptomatic and late manifestations are discussed with the origin of the chemotherapeutic agents and their indications and usage as well as the different types of fever therapy, malaria being stressed when the latter therapy is indicated. The toxic manifestations due to therapy are given with proper consideration as to the remedial and therapeutic courses to follow.

The author stresses the necessity of a complete physical examination preceding the beginning of chemotherapy. The dangers associated with improper selection of therapy in cardiovascular syphilis is forcibly emphasized.

The necessity of a routine spinal fluid examination following a full course of treatment is emphatically suggested in order to prevent discontinuance of treatment in asymptomatic cerebrospinal syphilis. The care and necessity for early continuous treatment of the pregnant syphilitic woman and the care of the offspring are completely discussed. A short discourse on prophylaxis against syphilis and the marriage of the syphilitic is given.

This text has a place in the library of every medical practitioner who has any intention of treating syphilis.

MONROE WOLF, M. D.

The Medical Clinics of North America: November, 1941. Philadelphia, W. B. Saunders Co., 1941. Pp. 407. Price \$2.50.

This is a most timely volume on a most vital problem confronting the country today. The entire book is given over to a symposium on military medicine. It is quite comprehensive although one feels as he reads the book that some of the discussions are somewhat lengthy. There are quite a few illustrations, charts and references that should prove worthwhile. In this same volume will also be found an index to volumes 23, 24 and 25 for the years 1939, 1940 and 1941.

I. L. ROBBINS, M. D.

Skin Grafting; by Earl Calvin Padgett, M. D., F. A. C. S. Springfield, Ill., Charles C. Thomas, 1942. Pp. 149. Price, \$4.50.

This important monograph on skin grafting, the first treatise of this kind to find its way into the literature, represents the clinical experience of one who has devoted many years to his specialty. It is an outstanding contribution to the field of skin coverage, and is most informative as to type, kind, variety, and indications for skin grafting.

The book is written in a clear, concise manner, is freely illustrated, and the chapter devoted to the "¾ thickness" grafts, with the author's method of securing same with his "dermatone", is extremely instructive. Other methods of securing free skin grafts are amply described.

The chapter on the grafting of sulci and cavities is rather brief, as well as the comments on the valuable pedicle and tubed pedicle grafts, which have been given more detailed and exhaustive description in other treatises on plastic surgery.

The book gives the impression of advocating the more frequent application of free skin grafts, particularly the "¾" skin grafts, as compared to pedicle grafts.

The author gives in detail his experiments with calibrated skin grafts or superficial and superficial-intermediate grafts in a series of tables showing their comparative values.

This book of 149 pages is freely recommended to those interested in this type of work.

WALDEMAR R. METZ, M. D.

A Handbook of Ocular Therapeutics; by Sanford R. Gifford, M. A., M. D., F. A. C. S. 3d ed. rev. Philadelphia, Lea & Febiger, 1942. Pp. 410. Price \$4.00.

The 1942 edition of this valuable reference book adds materially to the armamentarium of ophthalmology. Current ophthalmic therapeutic conceptions and experiments are presented in simple language and are evaluated by one of this country's first ophthalmologists.

Complex but important subjects of exceptional interest such as mimetics, vitamins, sulfonamides and buffer solutions are discussed in a concise and understandable manner. The author's openmindedness, frankness, and sound judgment are among the admirable features of this work as is the absence of bunk. The first is illustrated in the discussion of vitamin therapy; the second, in orthoptic training; the third, in dacryocystitis; and the fourth, in the sodium gold thiosulphate treatment of uveitis. The bibliography is comprehensive and well arranged. In the next edition, the following ideas are suggested. Seborrhoeic blepharoconjunctivitis is much more frequent than the author infers, as three of every four patients who consult an oculist have a psycho-neurotic factor, a brief description of health routines, its major treatment, could be incorporated to advantage. Among minor suggestions are the following: The umbilical nodules of moluscum contagiosum being highly contagious should be cauterized after their expression; and bandaging is an important adjunct to the other treatment of superficial punctate keratitis.

The ophthalmologist will make no mistake in using this handy little volume as a reference book.

CHARLES A. BAHN, M. D.

Synopsis of Genitourinary Diseases; by Austin I. Dodson, M. D., F. A. C. S., 3d ed. St. Louis, C. V. Mosby Co., 1941. Illus. Pp. 302. Price, \$3.50.

The author very tersely implies the purpose of this text in the Preface. The reviewer knows of no single volume that presents the subject, as the author wishes it to appear to the medical student and general practitioner, in such a concise, efficient manner, although at several points there are omissions that would necessitate repetition further on in the text where detailed descriptions are made. For instance, diabetic cord bladder has a place under neurogenic disturbances attributable to difficult urination and incontinence (p. 23); spermatorrhea and seminal vesiculitis may cause urethral

discharge (p. 24); torsion of the spermatic cord and testis should be mentioned on pages 28-29 although considered on page 207,—it is not sufficiently emphasized in any textbook.

The reviewer has found that the patient in the supine position is less satisfactory for prostatic examination than when he is placed in a lateral position with the thighs flexed and the examiner standing in front of the patient (p. 29). Urates may cause cloudy urine and readily clears on heating (p. 33). The reviewer appreciates the author's omission of hot sitz baths in his recommendations for heat in prostatic infections. No mention is made of the calcium salt of mandalic acid although it is as efficacious and much less irritating to the kidney tubules. This drug is also effective in *Streptococcus faecalis*. A correction should be made on page 53 on the dosage, grams should read grains as stated on page 110 where the correct dosage 200 grains is mentioned. Continued unaccountable hyperpyrexia should be mentioned as a toxic manifestation of the sulfonamides. New growth within a bladder diverticulum should be given consideration (pp. 82-84). The dietetic resumé (pp. 119-25) is space utilized to great advantage as few practitioners have dietitians available. Some mention of the sulfonamides and fever therapy should be made in the care of gonorrheal arthritis (p. 138). The incidence of tuberculosis of the urinary tract is not as prevalent in this territory as the author's statistics would indicate.

MONROE WOLF, M. D.

A Textbook of Surgery; by American Authors; Ed. by Frederick Christopher, B. S., M. D., F. A. C. S. 3d ed. Philadelphia & London, W. B. Saunders Co., 1942. Pp. 1764. Price, \$10.00.

The first edition of this textbook was published in 1936, followed in 1939 by a second edition. The third edition completely revised and reset, follows the excellence of its previous publications. This reviewer commented on the previous edition for the New Orleans Medical and Surgical Journal in 1939, and stated that it was the best textbook of surgery. So rapid are advances that many changes have of necessity had to be made. In checking over this edition for such progress as vitamin K, the sulfonamides, changes in concept and treatment of

peripheral vascular diseases, it is noted that this edition has been brought up to date. So excellent is this textbook, that if all were as accurate and as modern, the necessity of teaching students by reading lists from journals, would not be so essential. The references given at the end of each chapter, while not exhaustive, are sufficient to direct the student to modern authority on that particular subject. The student and practitioner will benefit by having this book for study and for reference.

HOWARD MAHORNER, M. D.

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